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SERIES No. 2002-01**

**The Dynamics of Housing Demand
in the Philippines:
Income and Lifecycle Effects**

Marife M. Ballesteros



PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

This study is part of the PIDS project on housing and examines the housing consumption pattern of households in the Philippines. Results show that while income is a major factor in housing demand, other factors such as lifecycle, price of housing and financing availability also affect demand.

The author is a PIDS Research Fellow who specializes in housing and urban development issues.

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Please address all inquiries to

Philippine Institute for Development Studies
NEDA sa Makati Building, 106 Amorsolo Street
Legaspi Village, 1229 Makati City, Philippines
Tel: (63-2) 893-5705 / 892-4059
Fax: (63-2) 893-9589 / 816-1091
E-mail: publications@pidsnet.pids.gov.ph
Website: <http://www.pids.gov.ph>

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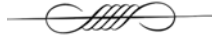
Abstract

This paper examines the housing consumption pattern of Philippine households. Two basic issues are examined: *one*, how is housing demand associated with income and demographic changes? and *two*, does the housing consumption pattern of households suggest the presence of significant housing market imperfections or capital market imperfections in the country?

The results show that while income is a major factor in housing demand, other factors such as lifecycle, price of housing and financing availability also affect demand. Estimates of income elasticity show that the demand for housing is highly responsive to a change in income, but housing adjustments are confined to basic improvements in housing facilities with minimal change on tenure.

The path toward acceptable housing is constrained due to several factors: *first*, the ratio of unit housing cost to income is rapidly rising; *second*, there are few low-cost alternatives to homeownership in the formal market; and *third*, innovative housing finance is limited and the microfinance schemes available suffer from liquidity problems and bureaucratic delays. Thus, government has to address the problems of housing in a broader context. The issues are not only confined in providing households income transfers through subsidies or in giving access to housing and security of tenure but also in looking at the larger issue of urban development.

I



Introduction

Housing demand analysis is primarily a question of how households adjust their housing consumption given factors that place them out of equilibrium. Housing adjustments maybe done by relocating to another unit, by modifying existing units or by tenure change. The decision on housing adjustment depends on a number of factors, which stems from the peculiar attributes of housing as a tradeable good (e.g. location specificity, heterogeneity, “neighborhood” effects, etc.), the characteristic of the households and the nature of the housing market. The attributes of housing are inherent, thus, differences in demand among households or across cities and countries are primarily due to household characteristics and the way the housing market operates within a city or country.

Attempts to provide a model that incorporates all factors affecting housing choice have been difficult (Smith et al. 1988). While some have succeeded in providing a dynamic model that considers household characteristics with investments, financing, and supply of housing in the market, the empirical test is difficult due to data unavailability. Thus, much of empirical literature on the demand for housing services has assumed a simple one-period model. Given this limitation, this investigation of housing demand focuses on the effects of household characteristics and treats conditions on the housing market as exogenous. Two issues are examined: *one*, how is housing consumption associated with income and demographic changes? *two*, does the housing consumption pattern of households suggest the presence of significant housing market imperfections or capital market imperfections?

The discussion proceeds as follows. Section 2 presents key characteristics of the Philippine housing market that may have major

The Dynamics of Housing Demand in the Philippines

influence on housing demand. Sections 3 and 4 present evidences of housing consumption pattern using household surveys conducted from 1985 to 1997. Section 3 provides some descriptive statistics on household tenure change and housing improvements while Section 4 discusses the estimates of housing demand parameters using the basic demand model. In section 5, the issue of housing affordability is further discussed. The last section gives a summary of results and provides some policy implications.

II



Key Features of the Housing Market in the Philippines

The Philippine housing market reveals a tremendous gap between the demand and supply of housing. At the root of this housing shortage is the fact that the majority of households are unable to pay for the cost of housing and land. The minimum housing cost of P150 thousand per unit is 3.8 times the yearly wages of an unskilled laborer in 1997. Likewise, a P250 thousand unit housing is 3.1 times the annual income of an employee earning a median income of P6,700 per month. This ratio is expected to be on the rise given the high rate of increase of housing prices in the country. Average annual housing price appreciation in the Philippines (i.e. Manila) is 32 percent per year, the highest among other major cities in Asia (HABITAT and World Bank 1993).¹

The high rate of increase in land prices is a major factor in house price appreciation (Strassman and Blunt 1993; Ballesteros 2000). Grimes (1976) suggested that as an international rule, housing for low-income families would require that 100m² of land should cost as much as gross national product (GNP) per capita. In Manila, however, the 1990 price (P1000/sq m) of a site outside the metropolis was 5.2 percent of the national GNP per capita. On the outskirts of the NCR, raw agricultural land costs only P60 per sq m (0.3 percent of GNP) but the price rises by 2.5-3.0 times when the same land is zoned for

¹ Annual rate of change of house prices was measured as an annual average of the percentage increase in house prices over the five-year period 1986-1990. These years correspond to a boom in the real estate industry likewise experienced in Bangkok, Hongkong, Singapore and Kuala Lumpur. The rate of change in housing price in these countries in the same period was 26 percent, 18 percent, 6 percent and 14 percent, respectively.

urban use. It rises further by 5.3-6.7 times the zoned land price when such area is developed (UNCHS and WB 1993).

The high cost of urban land in the country is due to constraints in the supply side of the market (Ballesteros 2000). *First*, poor planning and infrastructure developments limit the supply of housing land. *Second*, administrative bottlenecks in land and housing developments due to contradicting land laws, unclear standards and overlapping turfs cause delays in obtaining development permission. *Third*, problems on property rights, e.g. fake titling, delays in agreements of road rights of way, landgrabbing, etc. further increase transaction costs in land development. *Fourth*, land ownership is highly concentrated and low land and property tax in the country encourage holding land idle. All the above scenarios limit the supply of urban lands and increase the cost of servicing land, thus, causing phenomenal rates of increase in urban land prices.

Another feature of the housing market in the country is the lack of long-term financing for housing which could provide a way to offset the high unit cost of housing relative to income. Like most developing economies, the secondary financial market in the country is undeveloped. Long-term funds for housing are constrained and highly dependent on funds from government social security systems. Moreover, government housing finance programs have been unsustainable. One reason is graft and corruption in the approval and release of loans for the low-income sector. It has been reported that payments are released to participating housing developers with no existing household beneficiary. Another reason is poor subsidy transfer mechanisms. Loans to targeted beneficiaries have been released based on formula lending (i.e. loan amount is computed as a percentage of income) which does not recognize borrowers' probable lack of capacity to pay or incur additional indebtedness (Llanto 1998). In addition, there is less incentive for developers and lending institutions to be prudent since the loan is automatically taken out from them (Llanto 1998). The government thus assumes the full credit risk on these loans.

The rental housing market for low-income households in the Philippines is also not developed. Government housing programs

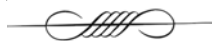
Key Features of the Housing Market in the Philippines

mainly emphasize homeownership. While most families would prefer home-ownership, not all families can afford it. Other households are more mobile and prefer renting to ownership. The rental market could thus serve as a “staging area” for these families. On the other hand, the rent control law has not been effective in providing low rents for low-income families since non-poor households also have access to low rents (Ballesteros 2002).

Table 1. Key Features of the Housing Market in the Philippines

Feature	Underlying Causes
High unit housing cost relative to income	Low wages, high unemployment Construction cost rising faster than wages High rate of increase of urban land prices
High rate of increase in urban land prices	Scarcity due to limited infrastructure developments, Scarcity due to Institutional problems (e.g. property rights, bureaucratic bottlenecks) Holding of idle lands due to lowland and property tax
Lack of long-term financing and unsustainable housing finance	Undeveloped secondary markets Graft and corruption Poor subsidy transfer mechanism
Undeveloped rental housing market for low-income households	Government bias on homeownership Rent control law

III



Tenure Change and Housing Improvements: Some Descriptive Statistics

The absence of a panel data for households in the Philippines makes it difficult to give an accurate measure of the mobility and path toward acceptable housing of households. Nonetheless, the trends in dwelling conditions and improvements are provided herein to give some indirect measures.

A. General Trends in Housing Consumption

There has been an increase in homeownership in the Philippines between 1985 and 1997 (Table 2). In 1985, 58.1 percent of households in the Philippines are homeowners. This proportion increased to 64.5 percent in 1997. The increase in homeownership is observed to be strong in the key urban cities, specifically Metro Manila and Metro Cebu. Comparatively, the trend on homeownership for the same period is slow in Davao City and in rural areas.

A clear pattern in all areas is the significant proportion of housing by informal means. This “informal” category encompasses a variety of arrangements, such as living with relatives, living in place of business or living on a working farm (the last two examples refer to institutional housing). Also included under this category are the illegal occupants of dwellings (without permission) and those living in natural habitat (e.g., caves). Those informal dwellers living with relatives or in place of business represent the tenure condition of one-fifth of households in the Philippines. There has been a significant increase of these types of informal dwellers in Metro Cebu and Davao City while the proportion has remained the same in Metro Manila. On the other hand, the proportion of informal dwellers that occupy housing illegally, shows increasing trend specifically in key urban

Table 2. Tenure Trends in the Philippines, 1985-1997 (in proportion of total households)

	1985	1991	1994	1997
Philippines	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	58.1	62.9	65.4	64.5
Rent house/room including lot	7.2	6.9	6.0	6.3
Own house, rent lot	6.6	5.5	4.2	4.0
Own/rent-free house, rent-free lot with consent of owner	26.1	22.3	21.6	22.0
Own/rent-free house, rent-free lot without consent of owner	2.0	2.3	2.7	3.2
Urban	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	50.1	58.3	61.6	60.1
Rent house/room including lot	17.4	13.2	11.4	12.3
Own house, rent lot	10.3	6.7	5.3	5.0
Own/rent-free house, rent-free lot with consent of owner	19.4	19.0	18.5	18.0
Own/rent-free house, rent-free lot without consent of owner	2.9	2.8	3.2	4.6
Rural	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	63.0	67.4	69.1	68.6
Rent house/room including lot	1.0	0.8	0.8	0.9
Own house, rent lot	4.4	4.3	3.2	3.1
Own/rent-free house, rent-free lot with consent of owner	30.1	25.6	24.7	25.6
Own/rent-free house, rent-free lot without consent of owner	1.4	1.9	2.2	1.9
IICR	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	41.2	45.5	49.4	50.0
Rent house/room including lot	32.4	30.7	27.6	25.9
Own house, rent lot	9.8	6.6	4.2	3.8
Own/rent-free house, rent-free lot with consent of owner	13.7	13.2	14.0	13.4
Own/rent-free house, rent-free lot without consent of owner	2.9	4.0	4.8	6.9
Metro Cebu	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	38.8	45.7	54.5	44.2
Rent house/room including lot	14.8	14.4	12.0	9.3
Own house, rent lot	12.8	11.1	13.4	11.9
Own/rent-free house, rent-free lot with consent of owner	11.2	26.1	13.4	20.5
Own/rent-free house, rent-free lot without consent of owner	22.4	2.7	6.7	14.0
Davao City	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	53.9	61.5	55.8	54.6
Rent house/room including lot	15.8	11.6	8.0	11.1
Own house, rent lot	9.7	3.9	5.8	8.0
Own/rent-free house, rent-free lot with consent of owner	19.7	19.3	25.8	24.6
Own/rent-free house, rent-free lot without consent of owner	1.0	3.7	4.5	1.7

Source: National Statistic Office (NSO), Family Income and Expenditure Survey (FIES)

areas. In NCR, this type of dwellers increased in proportion from 2.9 percent in 1985 to 6.9 percent in 1997. For the same year, the situation was worse in Metro Cebu, where illegal dwellers represented 14 percent of total households, an increase from a proportion of 2 percent in 1991.

Overall, the data indicate a “natural progression” toward obtaining what may be considered the best tenure status, i.e. homeownership with secure title to housing/land. However, the path toward homeownership is slow for about 50 percent of households. The alternative housing for most families is the informal housing category those who occupy dwellings rent-free with or without consent of legal owners. The rental housing alternative is observed to be the least preferred by families. This maybe due to the “undeveloped” rental housing for the low-income sector or that this type of rental housing is limited.

While housing adjustment by tenure is quite slow, improving or modifying housing units has been the apparent trend among households. Between 1985 and 1997, dwelling conditions for most families have improved considerably. Dwellings made of strong wall materials increased from 38.1 percent in 1985 to 62 percent in 1997 (Table 3). Homes made of makeshift materials have also declined from 4.0 percent in 1985 to 2.2 percent in 1997. Improvements in wall material have been significant in both urban and rural areas including key metropolitan areas.

Toilet facilities have also improved with more than 60 percent of dwellings using water-sealed toilet in 1997 compared to only 52 percent in 1985. Households’ water system, however, has remained poor with only about 50 percent having their own faucets and being connected to the community water system. This condition is, however, attributed to poor water infrastructure and institutional problems in the country rather than low demand for this facility (ADB 2000).

Improvements in dwellings have not been limited to households with secure tenures. Households occupying informal dwellings have likewise showed much improved housing conditions. For instance, in 1997, 62 percent of households occupying dwellings without consent of owners have homes that are mainly made of strong materials

Table 3. Housing Improvement by Tenure, Philippines, 1985-1997 (in percentage point change)^a

	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total
Philippines						
Strong Wall	21.9	26.8	27.4	23.4	27.1	23.9
Makeshift Wall	-1.5	0.8	-2.4	-3.2	-2.5	-1.8
Water-sealed Toilet	10.9	3.7	12.7	15.7	14.7	12.2
No Toilet	-1.6	-1.5	-3.4	-2.9	-7.3	-2.5
Own use, Faucet, Community Water System	4.3	-8.3	5.9	2.0	-0.9	2.8
Peddled Water	0.4	0.8	-0.6	1.9	7.9	0.8
Urban						
Strong Wall	17.4	26.9	27.9	28.4	32.6	23.4
Makeshift Wall	-0.5	0.7	-1.6	-4.0	-6.6	-1.3
Water-sealed Toilet	3.6	3.1	10.3	13.7	10.0	6.3
No Toilet	-0.2	-1.1	-1.4	-3.1	-8.7	-1.4
Own use, Faucet, Community Water System	-0.1	-9.0	5.0	-0.2	-8.9	-1.7
Peddled Water	-0.2	0.8	-0.9	2.6	9.5	0.6
Rural						
Strong Wall	19.8	23.6	26.5	17.8	14.4	20.3
Makeshift Wall	-2.1	2.2	-3.5	-3.2	0.0	-2.4
Water-sealed Toilet	10.3	7.7	15.8	12.7	16.0	11.9
No Toilet	-1.0	-5.2	-6.2	-1.0	-1.9	-1.8
Own use, Faucet, Community Water System	0.7	-5.8	6.7	-0.1	4.4	0.7
Peddled Water	0.2	-0.1	-0.2	0.9	1.6	0.4
IICR						
Strong Wall	20.5	27.0	37.2	35.5	47.1	26.8
Makeshift Wall	0.9	1.8	0.1	-0.4	-10.0	1.1
Water-sealed Toilet	3.5	3.9	2.9	13.3	10.7	4.8
No Toilet	-0.8	-1.2	-3.1	-3.0	-5.9	-1.4
Own use, Faucet, Community Water System	-2.9	-13.4	9.4	-8.8	-19.9	-7.2
Peddled Water	-2.1	1.5	-2.0	8.4	12.7	1.2
Metro Cebu						
Strong Wall	10.9	28.7	16.4	22.1	11.6	15.2
Makeshift Wall	-3.8	3.7	-2.4	-10.8	-1.7	-2.9
Water-sealed Toilet	-12.1	-0.7	-0.9	6.0	-0.5	-4.6
No Toilet	4.1	3.5	-0.5	-16.9	-6.4	-1.5

The Dynamics of Housing Demand in the Philippines

Table 3 (continued)

	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total
Own use, Faucet, Community Water System	-17.3	-13.5	-10.5	25.6	-6.7	-7.9
Peddled Water	5.4	3.7	1.1	-8.7	23.0	5.3
Davao City						
Strong Wall	26.1	38.4	18.2	41.4	76.9	30.5
Makeshift Wall	-1.5	-8.2	-4.1	-3.5	0.0	-3.1
Water-sealed Toilet	19.7	5.0	-10.7	17.5	35.8	13.7
No Toilet	4.1	4.4	3.1	14.0	23.1	6.9
Own use, Faucet, Community Water System	19.4	-8.9	-15.2	-2.2	53.3	7.6
Peddled Water	-0.9	-16.5	-3.3	6.0	23.6	-1.7

^a See Appendix 1 for details.

compared to only 23 percent in 1985. Toilet facilities also improved with 51 percent using water-sealed toilets compared to 36 percent in 1985. These types of improvements in dwelling conditions have been more pronounced in key urban cities.

B. Housing Consumption by Income Group

Homeownership as expected is comparatively higher among non-poor households, i.e. households above the poverty thresholds (Table 4).² However, poor households showed greater improvement in tenure status. In 1985, only 51.8 percent of poor families were homeowners. This proportion increased by about 10-percentage point in 1997. Comparatively, only a two percentage point increase is noted among non-poor households for the same period. There has been a decline in the total number of informal dwellers specifically those who live with relatives and in work areas although the number of

² Households were grouped based on the computed poverty threshold by region/city. This yielded a better classification of households by income over classification using income deciles. Poverty threshold considers regional differences in terms of prices and consumption patterns.

Table 4. Tenure Trends by Income Group, Poor vs. Non-poor Households, Philippines, (in proportion to total households)^a

1985							1997					
	Total	Own or owner-like Possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines												
Poor	100.0	51.8	4.0	7.1	34.7	2.4	100.0	62.0	1.9	3.8	28.9	3.4
Non-poor	100.0	63.1	9.8	6.2	19.2	1.6	100.0	65.7	8.4	4.1	18.7	3.0
Urban												
Poor	100.0	39.4	12.5	13.3	30.4	4.4	100.0	53.1	5.7	6.6	28.0	6.6
Non-poor	100.0	55.4	19.8	8.8	13.9	2.1	100.0	61.6	13.8	4.7	15.8	4.1
Rural												
Poor	100.0	56.8	0.6	4.6	36.4	1.6	100.0	65.2	0.5	2.8	29.2	2.3
Non-poor	100.0	69.4	1.5	4.2	23.7	1.2	100.0	71.2	1.2	3.4	22.7	1.5
NCR												
Poor	100.0	29.3	31.2	12.1	21.3	6.0	100.0	37.4	22.7	2.8	19.8	17.3
Non-poor	100.0	44.7	32.8	9.1	11.4	2.0	100.0	50.9	26.1	3.9	12.9	6.2
Metro Cebu												
Poor	100.0	20.9	13.4	11.9	20.9	32.8	100.0	39.7	7.0	15.4	19.6	18.3
Non-poor	100.0	48.1	15.5	13.2	6.2	17.1	100.0	44.6	9.5	11.6	20.6	13.7
Davao City												
Poor	100.0	47.1	10.9	10.3	30.2	1.6	100.0	41.6	6.8	13.4	38.2	-
Non-poor	100.0	57.8	18.6	9.3	13.7	0.6	100.0	56.3	11.7	7.3	22.8	1.9

^a See Appendix 2 for details.

households in illegally occupied dwellings or squatter areas has increased. An increase in illegal dwellings is noted among the non-poor households, which maybe indicative of the rising difficulty of obtaining housing from the formal sector even among non-poor families. This finding is also apparent in urban areas, specifically Metro Manila.

In Metro Manila, although there has been an increase in homeownership for both poor and non-poor households between 1985 and 1997, the increase in the proportion of households in illegally-occupied dwellings has also been sizeable. Among the poor households, the proportion of households in illegally-occupied dwellings in 1985 increased three times its level in 1997. This trend is also observed among non-poor households. The increase may have come from new households, from renter-households (house and lot or lot only) or from households under some informal dwelling arrangements.

The trends for Metro Cebu and Davao City show a decline in the proportion of homeownership even among the non-poor households, although the decline is relatively small. In Davao City, we find a comparatively insignificant proportion of illegal dwellers compared to Metro Cebu and NCR.

Housing improvements have generally been on the upward trend for all households, whether poor or non-poor (Table 5). There remain, however, poor water supply connections in all areas, which as earlier indicated, is primarily due to the poor water infrastructure in the country. Although there has been an increase in water outreach for poor communities under the privatization program of the MWSS and through LGU initiated water projects, providing households their own piped water through a community water system would still require much work (ADB 2000).

C. Housing Consumption by Lifecycle

The proportion of homeownership is highest among married headed households than households whose heads are unmarried, separated or widowed (Table 6). The household size is shown to have an impact on tenure where larger-sized households, whether house-

Table 5. Housing Improvement by Income Group, 1985-1997 (in percentage point change)

	Wall Material		Toilet Facility		Source of Water Supply	
	Strong	Makeshift	Water-sealed	None	Own use, faucet, community water system	Peddler
Philippines						
Poor	16.2	-3.1	5.5	-1.0	-2.8	-0.2
Non-poor	21.1	-0.5	9.7	-0.5	1.7	1.3
Urban						
Poor	17.4	-2.6	2.2	1.1	-7.2	-1.1
Non-poor	17.2	0.3	1.2	0.3	-6.2	1.3
Rural						
Poor	16.1	-3.2	7.3	-2.1	-0.7	0.3
Non-poor	20.5	-1.5	12.8	0.0	1.1	0.5
IICR						
Poor	23.1	11.1	5.5	1.0	-14.4	4.9
Non-poor	20.4	3.0	0.8	-0.7	-12.3	2.1
Metro Cebu						
Poor	9.0	1.5	-19.8	15.6	-4.3	13.5
Non-poor	5.4	-0.5	-13.9	1.5	-17.9	5.3
Davao City						
Poor	45.7	-4.5	9.2	20.2	4.2	-4.8
Non-poor	15.6	-1.1	4.1	5.9	-1.9	-0.6

^a See Appendix 3 to 5 for details.

hold heads are married or unmarried/separated/widowed, tend to have lesser capacity for homeownership than smaller-sized households.

The trends in tenure status by lifecycle show increases in the proportion toward homeownership for different household types. This trend is more pronounced among married-headed than single-headed households. However, illegal housing is more common among married-headed households.

Both single and married-headed households show increasing trend toward illegal dwellings. Illegal housing used to be uncom-

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Table 6. Tenure Trends by Lifecycle, Philippines, 1985-1997 (in percentage point change)^a

	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines					
single/separated, hsize=1	-1.2	1.8	3.2	-8.3	4.5
single w/hsize>1	-0.6	1.5	-0.9	0.5	-0.5
separated, hsize>1	13.9	-8.1	-2.2	-5.2	1.5
married, hhead<30, hsize< or =3	2.6	5.0	-1.5	-7.5	1.4
married, hhead<30, 3<hsize<6	9.4	0.4	-5.3	-6.0	1.6
married, hhead<30, hsize 6+	8.9	-1.7	-3.0	-5.3	1.1
married, hhead 30-39, hsize< or =3	3.2	2.2	-4.2	-0.8	-0.3
married, hhead 30-39, 3<hsize<6	9.3	-2.3	-3.1	-4.9	1.0
married, hhead 30-39, hsize 6+	11.8	-3.0	-3.1	-7.3	1.7
married, hhead 40-49, hsize< or =3	6.4	-0.6	-1.9	-6.3	2.4
married, hhead 40-49, 3<hsize<6	7.0	-1.9	-2.5	-3.3	0.7
married, hhead 40-49, hsize 6+	5.0	-1.0	-4.0	-1.9	1.9
married, hhead 50+, hsize< or =3	0.7	0.0	-1.6	-0.6	1.5
married, hhead 50+, 3<hsize<6	3.9	-0.5	-1.0	-2.7	0.4
married, hhead 50+, hsize 6+	5.4	-1.7	-2.1	-3.3	1.7
Urban					
single/separated, hsize=1	-3.3	-4.0	4.3	-2.6	5.6
single w/hsize>1	3.8	-3.5	-2.9	2.2	0.5
separated, hsize>1	22.2	-12.4	-4.2	-8.5	2.8
married, hhead<30, hsize< or =3	11.3	1.8	-5.9	-9.5	2.1
married, hhead<30, 3<hsize<6	13.4	-7.0	-8.8	2.2	0.3
married, hhead<30, hsize 6+	16.6	-5.3	-7.1	-2.6	-1.6
married, hhead 30-39, hsize< or =3	11.1	0.5	-6.8	-5.3	0.6
married, hhead 30-39, 3<hsize<6	10.8	-7.5	-4.5	-0.4	1.6
married, hhead 30-39, hsize 6+	14.2	-10.7	-6.3	-0.8	3.7
married, hhead 40-49, hsize< or =3	6.0	-11.8	-4.1	6.6	3.3
married, hhead 40-49, 3<hsize<6	13.9	-6.9	-3.1	-4.7	0.9
married, hhead 40-49, hsize 6+	9.9	-4.5	-8.1	-0.6	3.3
married, hhead 50+, hsize< or =3	7.9	-3.4	-3.7	-3.2	2.5
married, hhead 50+, 3<hsize<6	7.2	-3.3	-3.3	-0.2	-0.4
married, hhead 50+, hsize 6+	7.0	-4.6	-4.7	-0.2	2.4
Rural					
single/separated, hsize=1	7.8	-1.7	2.4	-11.7	3.1
single w/hsize>1	-1.5	1.6	1.1	0.9	-2.0

Table 6 (continued)

	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
separated, hhsz=1	2.0	-3.9	1.2	1.4	-0.8
married, hhead<30, hsize< or =3	2.7	-0.2	0.0	-3.3	0.8
married, hhead<30, 3<hsize<6	10.8	0.2	-3.8	-9.1	1.9
married, hhead<30, hsize 6+	6.0	-3.2	-1.2	-4.7	3.0
married, hhead 30-39, hsize< or =3	0.5	-2.1	-2.3	5.1	-1.3
married, hhead 30-39, 3<hsize<6	9.8	-0.4	-2.1	-7.5	0.2
married, hhead 30-39, hsize 6+	11.9	-0.7	-1.9	-9.6	0.2
married, hhead 40-49, hsize< or =3	9.9	3.0	-1.1	-12.9	1.1
married, hhead 40-49, 3<hsize<6	3.2	-0.3	-2.2	-0.8	0.2
married, hhead 40-49, hsize 6+	3.2	-0.1	-2.0	-1.6	0.5
married, hhead 50+, hsize< or =3	-2.2	0.4	-1.2	2.2	0.8
married, hhead 50+, 3<hsize<6	3.1	-0.1	-0.2	-3.3	0.6
married, hhead 50+, hsize 6+	4.5	-0.1	-0.2	-5.1	0.9
NCR					
single/separated, hhsz=1	21.4	-32.9	1.1	-2.2	12.6
single w/hhsz>1	9.3	-11.1	-4.9	4.1	2.7
separated, hhsz=1	23.9	-11.6	-7.9	-8.9	4.4
married, hhead<30, hsize< or =3	14.3	4.2	-11.5	-9.3	2.3
married, hhead<30, 3<hsize<6	6.0	-10.4	-5.2	6.7	2.9
married, hhead<30, hsize 6+	22.6	-3.8	-6.5	-7.4	-4.9
married, hhead 30-39, hsize< or =3	9.3	2.7	-4.6	-7.7	0.3
married, hhead 30-39, 3<hsize<6	4.5	-5.7	-3.0	3.7	0.5
married, hhead 30-39, hsize 6+	11.1	-20.4	-4.3	3.7	9.9
married, hhead 40-49, hsize< or =3	22.3	-26.9	-7.6	6.8	5.5
married, hhead 40-49, 3<hsize<6	16.3	-9.2	-2.5	-5.6	1.0
married, hhead 40-49, hsize 6+	7.3	-5.1	-8.8	-0.1	6.7
married, hhead 50+, hsize< or =3	10.1	-7.6	-3.9	0.3	1.1
married, hhead 50+, 3<hsize<6	6.4	-2.9	-4.4	-2.4	3.3
married, hhead 50+, hsize 6+	6.7	-6.0	-5.3	-1.2	5.9
Metro Cebu					
single/separated, hhsz=1	15.0	-18.1	9.2	-6.1	0.0
single w/hhsz>1	-34.5	6.6	-2.0	3.0	27.0
separated, hhsz=1	8.3	-50.0	0.0	16.7	25.0
married, hhead<30, hsize< or =3	0.9	44.5	3.6	-24.9	-24.1

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Table 6 (continued)

	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
married, hhead<30, 3<hsize<6	12.7	-17.5	5.6	26.9	-27.7
married, hhead<30, hsize 6+	25.9	-60.9	0.0	27.1	7.9
married, hhead 30-39, hsize< or =3	20.2	30.1	-20.7	-12.8	-16.8
married, hhead 30-39, 3<hsize<6	3.4	-5.7	-3.1	2.5	2.8
married, hhead 30-39, hsize 6+	10.1	-20.5	0.6	21.1	-11.3
married, hhead 40-49, hsize< or =3	-44.4	0.0	15.7	25.9	2.8
married, hhead 40-49, 3<hsize<6	-22.2	8.0	9.1	29.6	-24.6
married, hhead 40-49, hsize 6+	11.8	-4.5	-10.3	8.3	-5.4
married, hhead 50+, hsize< or =3	6.4	-20.0	18.7	-16.3	11.2
married, hhead 50+, 3<hsize<6	17.2	-1.7	9.7	-3.7	-21.5
married, hhead 50+, hsize 6+	-1.8	-6.7	-6.9	15.0	0.5
Davao City					
single/separated, hsize=1	-14.1	25.6	0.0	-11.5	0.0
single w/hsize>1	-23.9	-5.4	0.0	29.3	0.0
separated, hsize>1	20.8	-53.8	27.1	5.9	0.0
married, hhead<30, hsize< or =3	-39.4	15.6	9.4	14.3	0.0
married, hhead<30, 3<hsize<6	26.7	-19.9	-8.0	-6.4	7.6
married, hhead<30, hsize 6+	66.7	-50.0	0.0	-16.7	0.0
married, hhead 30-39, hsize< or =3	5.9	-14.7	0.0	8.8	0.0
married, hhead 30-39, 3<hsize<6	6.0	3.2	-12.2	5.6	-2.6
married, hhead 30-39, hsize 6+	-16.5	-3.4	11.8	11.7	-3.7
married, hhead 40-49, hsize< or =3	16.0	-13.9	-16.7	14.6	0.0
married, hhead 40-49, 3<hsize<6	12.8	-14.3	6.5	-7.4	2.4
married, hhead 40-49, hsize 6+	-16.4	3.2	1.7	10.0	1.5
married, hhead 50+, hsize< or =3	-17.5	-8.5	3.6	18.9	3.6
married, hhead 50+, 3<hsize<6	1.4	-2.2	-8.8	9.6	0.0
married, hhead 50+, hsize 6+	8.4	-5.0	-1.9	-1.5	0.0

^a See Appendix 6 for details.

mon among single-headed households, but we find a rise in the proportion of single-headed households in illegal type of dwellings.

The effects of lifecycle are more pronounced in specific localities. In NCR, while the proportion of homeownership is rising for all types

of households, single-headed households are mainly renter-households. Homeownership is highest among married-headed individuals where the household head is at least 50 years of age.

Informal dwellings without consent of owners are increasing for all types of households. It is observed that from 1985 to 1997, the conditions of housing by single-headed households have worsened. Similar conditions have been observed in other metropolitan areas, i.e. Cebu and Davao City. Informal dwellings are on the rise, specifically, illegal housing among single- and married-headed families. In highly urbanized areas like Metro Manila, Cebu and Davao, housing options in the formal market have become limited even among single-headed households with no dependents. The situation could thus be worse for households with dependents.

Improvements in housing are the apparent trend in housing consumption for both single- and married-headed households (Table 7). Between 1985 and 1997, housing facilities are much better, particularly in regard to wall material and toilet facilities.

Table 7. Housing Improvement by Lifecycle, 1985-1997 (in percentage point change)^a

	Wall Material	Toilet Facility	Source of Water Supply
	Strong	Water-sealed	Own use, faucet, community water system
Philippines			
single/separated, hsize=1	24.2	9.3	8.9
single w/ hsize>1	22.3	14.4	4.1
separated, hsize>1	19.5	12.0	1.3
married, hhead<30, hsize< or =3	32.2	23.8	5.1
married, hhead<30, 3<hsize<6	24.2	10.3	1.3
married, hhead<30, hsize 6+	25.7	14.5	1.8
married, hhead 30-39, hsize< or =3	20.4	3.3	0.5
married, hhead 30-39, 3<hsize<6	24.6	11.5	0.5
married, hhead 30-39, hsize 6+	20.1	9.7	1.5
married, hhead 40-49, hsize< or =3	33.2	17.9	9.4
married, hhead 40-49, 3<hsize<6	26.7	13.9	4.8
married, hhead 40-49, hsize 6+	20.9	8.1	1.8
married, hhead 50+, hsize< or =3	21.0	14.2	4.7
married, hhead 50+, 3<hsize<6	24.6	12.8	3.6
married, hhead 50+, hsize 6+	22.8	11.0	0.3

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Table 7 (continued)

	Wall Material	Toilet Facility	Source of Water Supply
	Strong	Water-sealed	Own use, faucet, community water system
Urban			
single/separated, hsize=1	25.3	-7.5	1.8
single w/ hsize>1	22.8	7.1	-5.0
separated, hsize>1	24.1	4.8	-1.7
married, hhead<30, hsize< or =3	27.0	11.7	-0.8
married, hhead<30, 3<hsize<6	29.8	8.1	-5.6
married, hhead<30, hsize 6+	28.9	15.3	-2.8
married, hhead 30-39, hsize< or =3	25.7	4.4	-1.7
married, hhead 30-39, 3<hsize<6	23.3	5.3	-3.8
married, hhead 30-39, hsize 6+	23.2	4.7	-1.2
married, hhead 40-49, hsize< or =3	27.3	13.1	3.5
married, hhead 40-49, 3<hsize<6	23.9	5.6	1.7
married, hhead 40-49, hsize 6+	22.8	6.1	-1.0
married, hhead 50+, hsize< or =3	23.2	8.2	2.5
married, hhead 50+, 3<hsize<6	17.2	4.7	-2.7
married, hhead 50+, hsize 6+	22.9	4.9	-4.7
Rural			
single/separated, hsize=1	10.2	6.9	3.4
single w/ hsize>1	15.5	15.5	3.8
separated, hsize>1	7.9	19.2	0.2
married, hhead<30, hsize< or =3	28.7	22.9	2.2
married, hhead<30, 3<hsize<6	15.8	5.9	0.3
married, hhead<30, hsize 6+	18.3	8.1	-0.5
married, hhead 30-39, hsize< or =3	9.4	-4.0	-4.1
married, hhead 30-39, 3<hsize<6	22.1	13.2	-0.1
married, hhead 30-39, hsize 6+	15.8	8.7	-0.3
married, hhead 40-49, hsize< or =3	32.9	15.4	5.8
married, hhead 40-49, 3<hsize<6	24.6	16.2	0.7
married, hhead 40-49, hsize 6+	16.4	5.7	-0.4
married, hhead 50+, hsize< or =3	16.1	12.6	0.9
married, hhead 50+, 3<hsize<6	26.1	14.3	2.1
married, hhead 50+, hsize 6+	21.0	14.1	1.4
ICR			
single/separated, hsize=1	25.9	-5.8	-13.1
single w/ hsize>1	14.9	3.0	-7.0
separated, hsize>1	21.9	7.1	-19.2

Table 7 (continued)

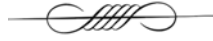
	Wall Material	Toilet Facility	Source of Water Supply
	Strong	Water-sealed	Own use, faucet, community water system
married, hhead<30, hsize< or =3	35.2	9.3	-7.3
married, hhead<30, 3<hsize<6	36.4	1.0	-12.6
married, hhead<30, hsize 6+	34.0	15.2	2.3
married, hhead 30-39, hsize< or =3	36.0	3.0	-14.8
married, hhead 30-39, 3<hsize<6	24.2	7.8	-8.8
married, hhead 30-39, hsize 6+	21.3	1.4	-11.0
married, hhead 40-49, hsize< or =3	27.2	16.6	-6.6
married, hhead 40-49, 3<hsize<6	33.1	2.0	-5.0
married, hhead 40-49, hsize 6+	33.1	7.4	-7.0
married, hhead 50+, hsize< or =3	17.5	-0.6	3.4
married, hhead 50+, 3<hsize<6	14.7	4.7	-6.8
married, hhead 50+, hsize 6+	29.1	5.1	-4.3
Metro Cebu			
single/separated, hsize=1	64.4	-23.3	36.7
single w/ hsize>1	9.3	-29.6	-9.9
separated, hsize>1	-32.0	-39.8	-1.7
married, hhead<30, hsize< or =3	19.5	16.2	10.4
married, hhead<30, 3<hsize<6	18.1	-3.2	6.2
married, hhead<30, hsize 6+	11.6	17.2	15.0
married, hhead 30-39, hsize< or =3	52.5	42.5	23.7
married, hhead 30-39, 3<hsize<6	8.3	-0.2	0.2
married, hhead 30-39, hsize 6+	28.9	-3.8	-11.7
married, hhead 40-49, hsize< or =3	38.0	-56.3	-39.0
married, hhead 40-49, 3<hsize<6	10.3	11.8	-39.6
married, hhead 40-49, hsize 6+	14.3	-17.9	-5.3
married, hhead 50+, hsize< or =3	69.6	39.5	16.7
married, hhead 50+, 3<hsize<6	26.5	1.9	2.2
married, hhead 50+, hsize 6+	-1.2	-16.1	-36.3
Davao City			
single/separated, hsize=1	0.0	0.0	34.6
single w/ hsize>1	47.1	24.1	23.9
separated, hsize>1	20.5	-3.0	-3.8
married, hhead<30, hsize< or =3	37.5	-10.1	-56.4
married, hhead<30, 3<hsize<6	41.3	-1.2	8.0
married, hhead<30, hsize 6+	-23.7	33.3	66.7

Table 7 (continued)

	Wall Material	Toilet Facility	Source of Water Supply
	Strong	Water-sealed	Own use, faucet, community water system
married, hhead 30-39, hsize< or =3	41.2	32.4	5.9
married, hhead 30-39, 3<hsize<6	41.2	6.3	8.1
married, hhead 30-39, hsize 6+	50.7	28.2	8.0
married, hhead 40-49, hsize< or =3	59.0	18.7	-1.4
married, hhead 40-49, 3<hsize<6	48.9	24.8	46.9
married, hhead 40-49, hsize 6+	27.3	12.5	8.9
married, hhead 50+, hsize< or =3	-4.6	1.2	-17.2
married, hhead 50+, 3<hsize<6	17.4	0.7	-8.4
married, hhead 50+, hsize 6+	42.3	19.0	7.7

^a See Appendix 7 to 9 for details.

IV



Estimates of Housing Demand Parameters

This section provides some quantitative measure of the effects of income and lifecycle on housing demand. The estimates are obtained from the application of a simple, one-period housing demand model.

A. The Model

The econometric analysis on housing demand is based on Alonso's classic utility maximization framework whereby a household's choice of a location and the amount of space consumed depends on income, tastes, and the shape of land and transport gradients. This utility maximization concept has been extended to analyzing an individual household's decision on housing services (Strazheim 1975). Households are assumed to choose a set of housing attributes such as maximum use subject to budget constraint. These housing attributes include both dwelling-unit characteristics (e.g. tenure choice, housing expenditure, age of structure, size and number of rooms, etc.) and neighborhood characteristics (e.g. racial or ethnic composition of the area, aesthetic and environmental aspects of the neighborhood, etc.). By simplifying assumptions with regard to the shape of price surfaces (i.e. ignoring neighborhood effects on prices and spatial discontinuities of housing prices) and to the effect of relocation costs on decisions of households, the utility maximizing model can be used to derive demand functions for several housing attributes. The elements of these demand functions are income and the parameters of the utility and rent surfaces (e.g. tastes, demographic factors, price).

The analysis applied in this study is confined to the characteristics of the housing unit. Two attributes of dwelling-unit characteristics are analyzed. *First*, total housing expenditure, refers to the amount

that households are willing to incur per unit of time to derive a given amount of housing services. *Second*, tenure choice, provides estimates on the maximum likelihood of households that choose ownership over renting. The demand equations are represented below. Data come from the Family Income and Expenditure Survey (FIES) conducted every three years among a representative sample of 40,000 households in the Philippines.

(1) Housing Expenditure Function

$$\ln R = a + b_1 \ln Y + b_2 \ln \text{Pratio} + \text{HC}$$

Where:

R = rent/imputed rent

Y = income/household expenditure

P = relative price of housing to non-housing goods

HC = housing characteristics

(2) Tenure Choice Function

$$Q = a + b_1 \ln Y + b_2 \ln \text{Pratio} + \text{HC}$$

Where:

Q = probability of ownership
(1 if owner; 0 if renter)

Pratio = $\frac{P_{own}}{P_{rent}}$

Income is predicted to be positively related to housing demand. An increase in income leads to an increase in demand for housing. In studies of durable consumer purchases, permanent income has been shown to be the relevant variable in consumers' housing decision (Friedman 1957). Total household expenditures have been used as proxy for permanent income.

The price of housing is also an important factor in housing demand. Housing is considered a normal good, thus, an increase in the price of housing is expected to reduce the demand for it (this may

in the savings rate or an increase in consumption of other household goods (e.g. clothing, food, recreation). The price term has been the source of greatest difficulty in housing demand equations. This difficulty stems from two sources (Ingram 1984): (a) measuring the variation in unit price of housing considering that housing is multidimensional and have different attributes in a single-purchase; and (b) a household faces a schedule of prices that is affected not only by the quantity of housing but location as well (i.e., a household may choose more quantity of housing but higher transport cost). There are different ways to measure the unit price of housing, to wit: indices of construction materials and rental prices, land and housing values, work place based price index (i.e. price variation is computed as the variation in expense by workplace for a given quantity of housing). In the absence of data on land and house prices in the FIES data set, we estimated price elasticity using construction and rental price indices at the provincial level. However, the data did not yield significant estimates. We further estimated housing prices using hedonic estimation, as follows:

(3) Hedonic Equation

$$\ln R = a + \sum b_i X_i + u_{t=1}$$

$X_1 =$ type of construction materials

$X_2 =$ source of water supply

$X_3 =$ type of toilet facilities

Given the data set, the hedonic estimates of housing prices have been limited to the above factors. Thus, the variation in housing price has been largely explained by differences in the type of housing while the price effect due to location differences has been confined to regional areas. The price data provided significant results for estimates using Philippine total but regional/city estimates yielded poor results since location differences have not been captured in variation of housing prices. The price variable was thus omitted in the expenditure demand functions for regional estimates.

demand functions for regional estimates.

The prices derived from hedonic estimates include both price and quantity. To untangle price and quantity, we applied Muth's (1971) methodology that assumes a two-input homogenous production function for housing, where the price of one input varies over the sample and the price of the other input is fixed (see also Malpezzi and Mayo 1987). Here we assume the variable input to be land and the housing structure as the fixed input. Given this assumption, the housing expenditure function can be written as follows:

$$(4) \quad \ln R = a + b_1 \ln Y + k_L (1 + E_p) \ln p_L + HC$$

where k_L is the share of land on housing and E_p is the price elasticity. The other variable definition follows equation (1) above. To convert the coefficient of the log of estimated housing values (b_2) from equation (1) into price elasticity (price effect), the following formula is used:

$$(5) \quad E_p = b_2 / k_L \sim 1$$

where b_2 is the estimated coefficient and the value of k_L is based on the standard land-structure ratio from government housing programs, which is 40 percent for land and 60 percent for structure.

With regard to socio-demographic determinants, the following trends are noted. The age of household head is expected to have a positive influence on demand but the demand for housing declines as the household head reaches old age. For marital status, there is a stronger desire for housing due to marriage. Household size is hypothesized to have a positive impact on housing expenditure. However, for very large households, housing consumption is assumed to be crowded out by food consumption, thus a negative relationship results as household size reaches a threshold level. Household size is the main demographic variable used. This variable also captures the effects of age and marital status on housing demand.

The above framework is typical of housing demand studies in the Philippines and elsewhere. The models differ as to how demand

country. In the last decade, econometric analyses of housing demand specifically in developing countries, have grown. This development provided greater understanding of the variation in data, model specifications and variable definitions in demand estimations. Comparatively, there are very few of such studies done in the Philippines. The initial attempt to estimate a demand function for housing in the Philippines was that of Angeles (1985). Malpezzi and Mayo (1987) estimated a similar housing demand function using data from a household survey conducted in Metro Manila in 1984. Geron and Llanto (2001) applied a simple demand model omitting price variation (i.e. assuming no intra-metropolitan variation in prices and thus variation is primarily due to quantities) using data from the FIES. Following the demand models used in these studies, the paper extended analysis to include demand by different categories of households and for specific housing attributes. This study also takes into consideration locational variations in demand compared to the aggregate parameters employed by earlier studies.

B. Demand Estimates by Location

Income has been a major determinant of housing demand. Housing demand is noted to be income elastic. Income elasticity of housing demand shows estimates greater than unity for both owners and renters (Figures 1 & 2). There is an observed variation in income elasticity among renters in different areas but point estimates generally suggest elastic demand. This finding implies that housing expenditure is highly responsive to a change in income whereby households will tend to use increases in income primarily for housing. Based on the housing consumption pattern of households, additional incomes will be most likely spent on improvements of housing facilities.

Figure 1. Interval Estimates of Owner Income Elasticities

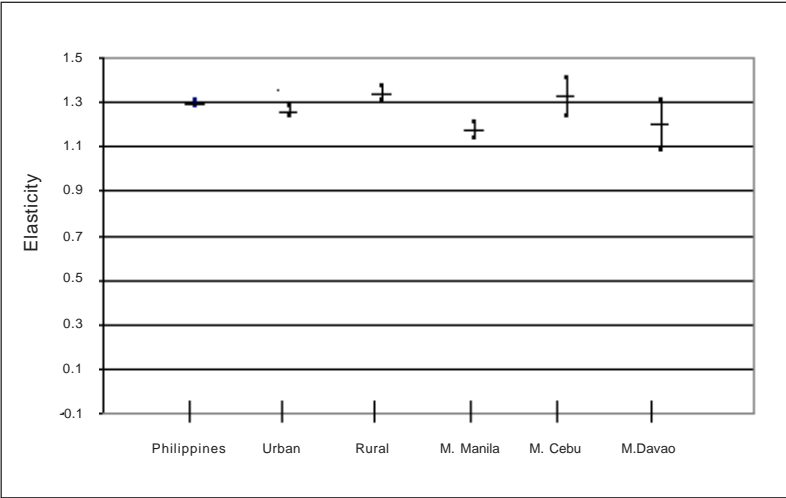
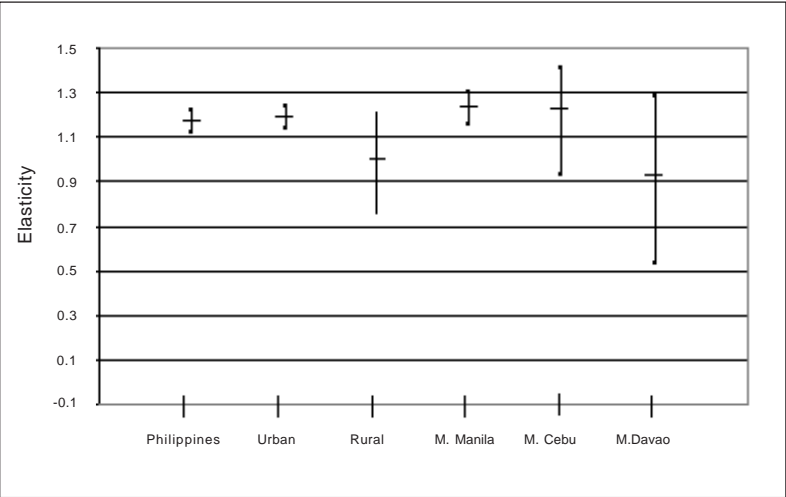


Figure 2. Interval Estimates of Renter Income Elasticities



Note: See Appendix 10 for details.

Demand for housing by renters is also income elastic but a divergent behavior among renters is observed. This divergence may reflect different types of renter-households. For instance, there are renters who have their own houses but rent in another location, usually near their work areas, as alternative dwelling. Both low and high-income renters also exist.

Demand for homeownership is high in the Philippines (Table 8). Most households prefer to be homeowners and renting is hardly an option. However, this condition arises from the higher cost of renting than ownership in the country rather than households' aversion to renting. The hedonic estimates show that the average price ratio of ownership to renting is less than unity. This is also the case in the key urban cities of Metro Manila, Metro Cebu and Davao City where average price ratios of 0.83, 0.44 and 0.33, respectively, have been observed. Although the hedonic price estimates have not fully cap-

Table 8. Probability of Homeownership

Annual Family Income	Urban Philippines ^a
50,000	0.695
80,000	0.697
100,000	0.698
200,000	0.700
500,000	0.701

^a Estimates for rural Philippines were bias due to the small number of renters. The assumptions for probability estimates are as follows:

Married Headed HH

Household size: Urban = 5

Average price ratio	$\left(\begin{array}{c} \text{ownership} \\ \text{renting} \end{array} \right)$	Urban	= 0.67
		Rural	= 0.39
		NCR	= 0.83
		M. Cebu	= 0.44
		M. Davao	= 0.33

tured the effects of location differences on prices, the results reflect a rental housing market that caters largely to higher-income households. Thus, it is not surprising that informal housing exists (e.g. rent-free) and that conditions of doubled-up or multi-family dwellings are common.

C. Demand Estimates by Type of Household

Estimates of income elasticity by income categories show that elastic demand for both poor and non-poor households (Table 9).³ Inelastic demand is observed primarily among renters, although as mentioned earlier, the behavior of renters is diverse.

Comparing poor and non-poor households across cities show that in Metro Manila poor households display inelastic demand. Poor households in Metro Manila tend to spend less on housing for a percent change in income compared to poor households in Metro Cebu and Davao. This is indicative of the differences in levels of poverty between Manila and other key cities in the country. In all key cities, housing is a major problem, however, the poor in Manila have less access to other basic needs (e.g. food, clothing) as compared to their counterparts in Cebu and Davao.

Classifying households by lifecycle, yielded different income elasticity estimates between single- and married-headed households (Table 10). Housing expenditures of married-headed households tend to be more responsive to change in income compared to single-headed households. This may be because married-headed households tend to be less mobile than single-headed households. The difference is more pronounced in Metro Manila than in Cebu or Davao. In the latter cities, both single and married-headed households displayed income elastic demand.

³ Poor households are households whose incomes fall below a poverty threshold income within a region. The poverty threshold is based on prices and consumption patterns within the region.

Estimates of Housing Demand Parameters

Table 9. Income and Price Elasticity by Income Group ^a

	Owners				Renters			
	Intercept	Income (E)	Price (E)	Adjusted R ²	Intercept	Income (E)	Price (E)	Adjusted R ²
Philippines								
Poor	-7.080 (0.254)	1.314 (0.028)	-0.041 (0.027)	0.376	-5.315 (1.040)	1.042 (0.126)	0.336 (0.086)	0.536
Non-Poor	-6.698 (0.090)	1.298 (0.009)	-0.138 (0.012)	0.661	-5.884 (0.312)	1.197 (0.028)	-0.201 (0.034)	0.551
Urban								
Poor	-6.704 (0.388)	1.333 (0.045)	-0.257 (0.035)	0.419	-5.116 (1.166)	1.053 (0.133)	0.217 (0.102)	0.466
Non-Poor	-5.086 (0.104)	1.195 (0.010)	-0.307 (0.011)	0.650	-5.666 (0.326)	1.199 (0.028)	-0.303 (0.035)	0.543
Rural								
Poor	-6.319 (0.355)	1.234 (0.037)	-0.080 (0.039)	0.310	n.s.	n.s.	n.s.	0.352
Non-Poor	-6.624 (0.232)	1.290 (0.021)	-0.189 (0.032)	0.493	-4.241 (1.664)	0.975 (0.152)	0.138 (0.157)	0.363
NCR								
Poor	-0.575 (2.007)	0.937 (0.202)	-	0.193	n.s.	n.s.	n.s.	0.017
Non-Poor	-3.313 (0.212)	1.178 (0.018)	-	0.687	-4.598 (0.429)	1.253 (0.038)	-	0.524
Metro Cebu								
Poor	-12.574 (5.112)	2.075 (0.515)	-	0.336	n.s.	n.s.	n.s.	n.s.
Non-Poor	-4.698 (0.514)	1.303 (0.047)	-	0.6914	n.s.	n.s.	n.s.	n.s.
Metro Davao								
Poor	-26.152 (6.188)	3.683 (0.666)	-	0.620	n.s.	n.s.	n.s.	n.s.
Non-Poor	-3.382 (0.678)	1.152 (0.063)	-	0.634	n.s.	n.s.	n.s.	n.s.

^a Income group based on poverty threshold by region.

n.s. = not significant due to lack of sample households.

- = no results due to minimal variation in hedonic price data.

() = data in parentheses refer to standard deviation.

Table 10. Income Elasticity by Lifecycle

Lifecycle	Urban	Rural	Metro Manila	Metro Cebu	Metro Davao
single/separated, hhsz=1	0.98	0.77	1.17	-	-
single w/ hhsz>1	0.99	0.87	0.93	-	-
separated, hhsz>1	1.07	0.86	0.98	1.09	0.82
married, hhead<30, hsz<=3	1.02	0.92	1.13	-	-
married, hhead<30, 3<hsz<6	1.10	1.12	1.01	1.00	-
married, hhead<30, hsz 6+	0.91	1.08	0.81	-	-
married, hhead 30-39, hsz<=3	1.07	1.05	1.00	-	-
married, hhead 30-39, 3<hsz<6	1.05	1.03	0.95	1.09	1.25
married, hhead 30-39, hsz 6+	1.12	1.11	1.00	1.05	-
married, hhead 40-49, hsz<=3	1.09	1.12	1.05	-	-
married, hhead 40-49, 3<hsz<6	1.08	1.08	1.02	1.24	0.84
married, hhead 40-49, hsz 6+	1.11	1.09	0.95	0.96	0.94
married, hhead 50+, hsz<=3	1.03	1.04	0.96	-	0.74
married, hhead 50+, 3<hsz<6	1.03	1.11	0.98	1.27	1.32
married, hhead 50+, hsz 6+	1.09	1.02	1.09	1.32	0.86

- not significant due to lack of sample data

V



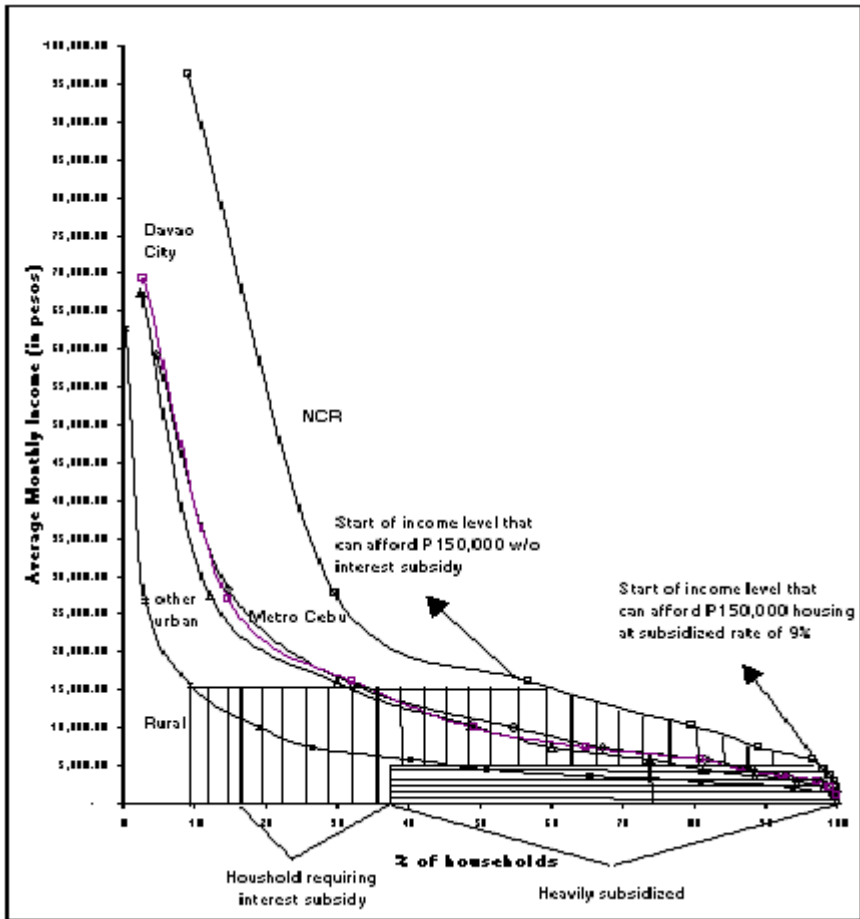
Housing Affordability and Housing Options

Housing demand is shown to be largely associated with income. For this reason, housing affordability has often been measured in terms of the proportion of income that a household must or is willing to spend on housing. However, the demand estimates also show that there are underlying factors such as lifecycle, price of housing and financing availability that impact on housing affordability.

We tried to capture the interaction of these factors by looking into the distribution of households by average incomes in specific locations. These income levels are matched with housing expenditure patterns and financing availability to come up with some indication of housing affordability.

The distribution of households based on average incomes shows that urban households receive more income than rural households (Figure 3). Metro Cebu and Davao City approximate the distribution in most urban areas. On the other hand, households in Metro Manila are apparently richer than households in other locations. About 57 percent of households in Metro Manila have an average annual household income between P150,000 and P250,000 while in other urban areas about 60% of households have incomes between P80,000 and P100,000. These income levels are way above the poverty threshold income in Metro Manila and urban areas which are P14,000 and P12,577, respectively. Thus, in terms of income we find that in urban areas, most households are middle-income earners.

Figure 3. Percentile Distribution of Families, by Income Level

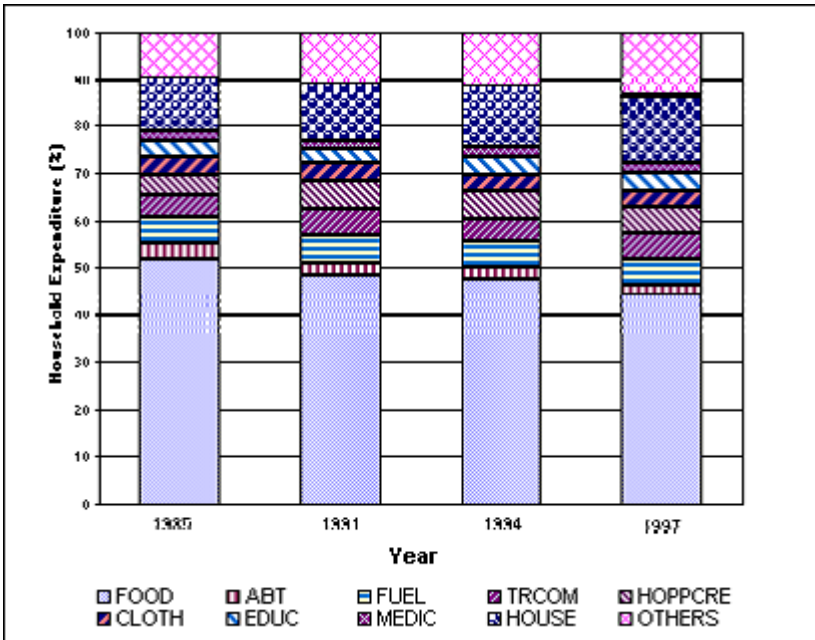


The income available for housing is, however, minimal. The expenditure pattern of households shows that at least 50 percent of income is spent on food (Figure 4). Housing expenditure represents 10 to 20 percent of total expenditures with low-income households spending more in proportion to higher-income households. Food and housing expenditures combined represent 70 to 80 percent of household income. This leaves only a small amount of income for

expenditures on other basic needs (e.g. clothing, fuel, transport, education). Households thus have limited capacities to shift from non-housing to housing expenses. Increase in housing expenditures is possible through an increase in income or through income transfers (e.g. subsidies).

What are the households' options in terms of available housing in the market? The minimum low-cost housing unit under government programs costs P150,000. If households provide an equity of 25 percent, the loan amount required to obtain the P150,000 unit house would be about P112,500. Loan amortization for this loan would amount to about P800 per month for 30 years at a subsidized rate of 9 percent (Table 11). This leaves out 62.5 percent of households from the formal housing market for the entire Philippines; 40 percent of households in the urban areas; and 81 percent of households in rural

Figure 4. Household Expenditure Pattern, Philippines, 1985-1997



Note: See Appendix 11 for details.

Table 11. Average Housing Expenditure and Loan Amortization

Income Class	Monthly Housing Expenditure						Housing Loan (Formal Sector) ^a			
	Philippines	Urban	Rural	NCR	Metro Cebu	Davao City	Loan Amount	Interest Rate	Loan Amortization	
									25	30 ^b
under 10,000	66.93	64.85	67.21	-	-	-	50,000	9	419.60	402.31
10,000-19,999	123.97	151.21	118.21	300.00	338.38	209.46	60,000	9	503.52	482.77
20,000-29,999	175.37	214.71	166.11	493.89	325.58	413.01	70,000	9	587.44	563.23
30,000-39,999	240.15	298.95	221.97	701.05	462.59	243.22	80,000	9	671.36	643.70
40,000-49,999	309.55	370.09	282.67	671.16	454.49	368.75	90,000	9	755.28	724.16
50,000-59,999	416.16	494.77	368.34	784.17	567.85	535.46	100,000	9	839.20	804.62
60,000-79,999	571.02	640.72	477.73	892.71	674.11	537.72	150,000	9	1,258.80	1,206.93
80,000-99,999	786.92	811.83	633.23	1,177.04	932.36	686.73	200,000	12	2,106.44	2,057.22
100,000-149,999	1,181.19	1,177.75	930.49	1,591.23	1,349.15	1,050.43	250,000	12	2,633.05	2,571.53
150,000-249,999	1,944.81	1,859.21	1,348.70	2,583.36	2,013.54	1,754.04	300,000	16	4,076.67	4,034.28
250,000-499,999	3,509.75	3,022.89	2,551.33	4,519.08	3,680.47	2,869.02	350,000	16	4,756.12	4,706.66
500,000 & over	13,873.00	6,142.86	4,345.71	20,462.03	8,962.95	7,224.09	400,000	16	5,435.56	5,379.04
							450,000	16	6,115.01	6,051.42
							500,000	16	6,794.45	6,723.80

^a Based on HDMF schedule of loan amortization and interest for housing loan.^b Monthly loan amortization of a P150,000 loan for 30 years at 16 percent interest rate computed at P2,017.

areas (refer to Figure 3). In the case of rural areas, it may be argued that the cost of housing is cheaper.

The number of families unable to afford homeownership in the formal sector further increases when the low savings capacity of households is taken into account. Providing the required equity portion of housing loans has been a major constraint for most households. While government programs and other private developers have waived the equity requirement, the implication is that households have to borrow the full amount of P150,000 and pay monthly amortization of about P1,206.93 at subsidized interest rates of 9 percent. At a market interest rate of 16 percent, wherein monthly loan amortization becomes P2,017, a P150,000 unit would then be accessible only to households with annual incomes of at least P250,000.

The situation varies by location. In Metro Manila, we find that only about 3 percent of households would be unable to avail of the loan amortization for a P150,000 housing unit at subsidized rate. The proportion is higher for Metro Cebu and Davao City but households in these cities are comparatively better off compared to other areas in the country. This is apparently the result of better income-generating activities of households in highly urbanized cities.

The above findings show that subsidizing interest rates alone is not sufficient to allow poor households access to formal and decent housing. There has to be a significant reduction in the costs of housing or other low-cost housing alternatives have to be considered.

With the constraint on homeownership, alternative housing for most households is the informal sector, where about 30 percent of households dwell. The rental housing market has not been an alternative for most households and this is probably due to high rents. The distribution of renter-households show that about 50 percent pay monthly rents of at least P1,000 (Table 12). The proportion is higher in key urban cities specifically, Metro Manila. This rent value is more than sufficient to pay for the monthly amortization of a P150,000 housing unit.

The Dynamics of Housing Demand in the Philippines

Table 12. Distribution of Renter-Households by Monthly Rent, 1997 (in percent)

Monthly Rent	Philippine	Urban	Rural	NCR	Metro Cebu	Metro Davao
Total	100.0	100.0	100.0	100.0	100.0	100.0
<50	0.3	0.1	2.5	-	-	-
50-99	1.1	0.8	5.5	0.5	-	1.8
100-149	1.5	1.1	6.5	0.3	0.7	3.5
150-199	1.4	0.9	6.9	0.1	-	-
200-299	4.8	3.1	25.9	0.7	7.5	10.2
300-499	10.3	10.0	13.8	5.7	17.5	27.9
500-699	14.7	14.7	15.4	13.3	25.2	22.0
700-999	12.2	12.8	4.7	12.2	8.5	11.4
1000+	53.7	56.5	18.9	67.2	40.6	23.2

Source: FIES 1997

Another alternative housing is homeownership through microfinance schemes. These schemes are showing signs of success in providing homeownership specifically for the poor. The Community Mortgage Program for instance, provides loan amortization of only P185 per month, which is well within the capacity to pay of poor households. Available long-term financing at subsidized interest rate and the incremental housing scheme have made possible the low monthly amortization of microfinance schemes.

Incremental housing is a scheme whereby housing is acquired in progression. The usual mode is to initially secure tenure by buying undeveloped land and later, the household acquires another loan for land and housing development. This scheme has been acceptable specifically among informal urban dwellers occupying private and public lands. While it has made significant contributions in terms of security of land tenure, progression to land and housing development has been very slow. The success of the program has also been slowed down by low loan recovery, bureaucratic delays and conflicts within the community organization (PADCO 1993).

VI



Concluding Statements

Housing demand in the Philippines has been mainly dictated by housing affordability, which refers not only to a household's ability to pay but also to the price of housing in the market and the financing schemes available. Housing affordability is low in the country. This is attributed to several factors: *first*, the ratio of unit housing cost to income is rapidly rising. Housing price appreciation is highest in the Philippines among countries in Asia and this is mainly due to rising land prices. *Second*, there are few low-cost alternatives to homeownership in the formal market. Many households cannot afford homeownership. Only about 50 percent of households in the country can afford to buy a home in the formal market. The situation can be worse in some areas. Moreover, the rental market, specifically low-cost rental housing, is limited, thus, households engage in various informal housing arrangements (e.g. rent-free occupation, squatting) and multi-occupancy dwelling has become common. *Third*, innovative housing finance is limited and the microfinance schemes available suffer from liquidity problems and bureaucratic delays.

The above conditions are reflected in the consumption pattern of households. The path toward acceptable housing has been very slow and housing adjustments have been confined to home improvements with minimal changes on tenure. Government has to address the problems of housing in a broader context. The issues are not only confined in providing households income transfers through subsidies or in giving access to housing and security of tenure but also in looking at the larger issue of urban development. Within the households' microenvironment, government may consider the development of the rental housing market, the provision of alternative financing schemes that takes into account the households' capacity to pay (e.g. rent to own schemes, "balloon" payment on amortization,

microfinance, etc.), or encourage the development of “cheap” housing technologies. These actions should, however, be supported by ways to effectively reduce the high cost of housing in the country. Such move calls for institutional strengthening specifically in the areas of land management and administration as well as in local governance.

Appendix 1. Housing Improvements by Tenure (in proportion of HH)

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
Philippines												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	44.6	66.5	56.8	83.5	29.5	56.9	21.7	45.1	23.2	50.3	38.1	62.0
Light	52.5	32.1	39.9	12.3	66.1	41.0	72.3	52.1	64.1	39.5	57.9	35.8
Makeshift	2.9	1.4	3.3	4.1	4.5	2.1	6.0	2.8	12.6	10.2	4.0	2.2
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	56.5	67.5	80.8	84.6	55.6	68.3	34.7	50.4	36.5	51.2	52.1	64.3
Closed pit	16.5	12.2	8.4	7.3	18.3	10.3	19.0	12.7	12.5	13.7	16.6	12.0
Open pit	14.5	9.6	2.7	1.6	8.9	6.9	19.0	12.4	20.3	9.0	14.6	9.6
Others (pail system, etc.)	3.1	3.0	4.1	4.3	3.5	4.2	4.8	4.9	4.7	7.5	3.7	3.7
None	9.3	7.7	3.9	2.4	13.6	10.2	22.5	19.6	25.9	18.6	13.0	10.5
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	18.0	22.4	54.1	45.9	21.7	27.6	10.4	12.4	15.3	14.4	18.8	21.6
Shared, faucet community water system	14.8	17.6	20.7	27.2	28.2	28.5	19.2	24.6	26.5	30.1	17.5	20.6
Own use, tubed/piped well	21.9	19.4	7.2	5.3	11.3	7.9	11.1	10.3	8.9	6.5	17.0	15.6
Shared, tubed/piped well	15.4	17.5	8.6	12.4	17.7	19.9	20.9	24.9	19.1	22.2	16.6	19.0
Dugwell	16.8	11.8	2.6	2.3	12.3	7.5	23.4	14.9	19.8	9.6	17.3	11.6
Spring, river, stream, etc.	10.0	9.1	0.9	0.7	3.1	2.7	12.4	9.1	6.6	5.7	9.4	8.2
Rain	1.5	0.4	0.4	0.1	0.3	1.1	1.1	0.3	0.4	0.1	1.2	0.4
Peddler	1.5	1.9	5.5	6.3	5.5	4.9	1.6	3.5	3.5	11.4	2.1	3.0

Appendix 1 (continued)

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
Urban												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	62.7	80.2	57.5	84.4	32.6	60.5	31.2	59.6	23.9	56.5	51.5	74.9
Light	34.8	17.9	38.9	11.4	62.6	36.3	60.5	36.2	56.7	30.8	44.0	21.9
Makeshift	2.4	1.9	3.6	4.3	4.8	3.2	8.2	4.2	19.3	12.7	4.5	3.2
Type of toilet facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	77.5	81.1	82.5	85.6	62.9	73.2	52.5	66.2	45.8	55.7	71.1	77.4
Closed pit	10.3	7.8	7.8	6.9	17.8	9.5	14.6	9.8	10.1	12.3	11.5	8.4
Open pit	5.4	4.2	2.2	1.1	5.7	4.0	12.7	7.2	15.3	7.6	6.6	4.5
Others (pail system, etc.)	2.8	3.2	4.3	4.3	3.8	4.8	5.3	5.1	5.2	9.4	3.7	4.0
None	3.9	3.7	3.2	2.1	9.9	8.5	14.8	11.8	23.7	15.0	7.1	5.7
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	41.0	40.9	56.8	47.9	31.5	36.5	24.7	24.5	27.9	18.9	39.2	37.6
Shared, faucet, community water system	15.3	16.5	20.4	27.1	28.7	25.4	28.9	28.3	39.1	32.9	20.9	21.1
Own use, tubed/piped well	19.7	17.5	6.3	5.1	9.5	7.8	9.0	9.4	6.8	4.5	13.9	13.4
Shared, tubed/piped well...	12.0	13.5	7.6	11.2	14.2	15.6	19.5	20.3	9.1	21.4	12.8	14.9
Dugwell	6.3	5.6	2.2	1.8	7.3	6.7	10.3	8.1	10.2	5.9	6.6	5.6
Spring, river, stream, etc.	1.5	2.5	0.5	0.3	1.2	1.4	3.1	2.5	0.5	0.4	1.6	2.1
Rain	0.5	0.2	0.3	0.1	0.1	-	0.4	0.1	-	0.1	0.4	0.1
Peddler	3.6	3.4	5.8	6.6	7.6	6.7	4.2	6.8	6.4	15.9	4.6	5.2

Appendix 1 (continued)

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
Rural												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	35.9	55.6	49.6	73.3	25.0	51.5	18.0	35.8	22.4	36.7	29.9	50.3
Light	61.1	43.4	50.4	24.5	71.0	47.9	76.9	62.3	73.2	58.8	66.3	48.5
Makeshift	3.1	1.0	-	2.2	4.0	0.6	5.1	1.9	4.5	4.4	3.7	1.3
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	46.4	56.7	63.6	71.3	45.3	61.1	27.7	40.3	25.2	41.2	40.6	52.5
Closed pit	19.5	15.7	14.6	12.3	19.0	11.5	20.7	14.6	15.6	16.9	19.7	15.3
Open pit	18.9	13.9	8.3	7.2	13.6	11.3	21.5	15.7	26.5	11.9	19.5	14.1
Others (pail system, etc.)	3.2	2.8	2.4	3.2	3.2	3.4	4.6	4.7	4.0	3.2	3.6	3.3
None	12.0	11.0	11.1	5.9	18.9	12.7	25.6	24.6	28.7	26.8	16.6	14.8
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	6.9	7.6	25.9	20.0	7.8	14.5	4.7	4.6	-	4.4	6.4	7.1
Shared, faucet community water system	14.7	18.6	24.0	28.2	27.5	33.0	15.3	22.3	11.0	24.1	15.5	20.2
Own use, tubed/piped well	22.9	20.9	16.6	8.3	13.8	8.0	11.9	10.8	11.5	10.9	19.0	17.6
Shared, tubed/piped well	17.0	20.7	18.6	28.4	22.7	26.2	21.4	27.8	31.2	24.1	18.8	22.8
Dugwell	22.0	16.7	6.8	8.1	19.4	8.7	28.6	19.3	31.4	17.6	23.8	17.1
Spring, river, stream, etc.	14.1	14.3	4.8	4.8	5.6	4.6	16.1	13.3	14.1	17.2	14.2	13.7
Rain	2.0	0.5	1.1	-	0.5	2.6	1.3	0.4	0.8	0.1	1.7	0.6
Peddler	0.5	0.7	2.2	2.1	2.6	2.4	0.6	1.5	-	1.6	0.6	1.0

Appendix 1 (continued)

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
MCR												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	68.5	88.0	59.2	86.3	44.8	82.0	44.7	80.2	19.6	66.8	58.5	85.3
Light	28.3	6.9	36.4	7.6	49.5	12.2	45.5	10.4	48.1	11.0	36.0	8.1
Makeshift	3.1	4.1	4.3	6.1	5.6	5.7	9.8	9.4	32.2	22.2	5.5	6.6
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	83.4	86.9	84.0	87.9	74.3	77.3	69.6	82.9	52.7	63.3	79.9	84.6
Closed pit	7.2	6.4	7.1	6.9	12.7	11.2	9.0	7.3	9.8	11.2	8.0	7.2
Open pit	2.7	1.4	1.0	0.4	0.8	2.6	6.7	1.8	16.0	3.6	2.9	1.4
Others (pail system, etc.)	5.0	4.4	5.4	3.6	6.4	6.3	8.8	5.2	7.0	13.3	5.9	5.0
None	1.6	0.8	2.4	1.2	5.7	2.6	5.9	2.9	14.5	8.6	3.2	1.8
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	59.5	56.6	64.0	50.6	42.6	52.0	42.2	33.4	39.0	19.1	56.3	49.2
Shared, faucet community water system	16.1	18.0	21.2	28.3	31.1	23.1	34.1	32.7	36.7	34.8	22.3	24.0
Own use, tubed/piped well	7.3	7.3	2.8	3.5	5.1	3.3	1.6	5.1	2.9	4.0	4.7	5.6
Shared, tubed/piped well	4.3	8.1	3.7	8.4	2.7	8.8	11.6	10.9	6.1	14.6	5.0	9.0
Dugwell	3.2	2.5	1.1	0.7	3.8	-	2.5	1.5	4.5	3.9	2.5	1.9
Spring, river, stream, etc.	-	-	-	-	-	-	-	-	-	-	-	-
Rain	-	-	-	-	-	-	-	-	-	-	-	-
Peddler	9.6	7.5	7.1	8.5	14.8	12.8	8.0	16.4	10.9	23.6	9.1	10.3

Appendix 1 (continued)

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
Metm Cebu												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	67.1	78.0	44.8	73.5	36.0	52.4	27.3	48.4	45.5	57.0	50.5	65.7
Light	27.6	20.5	55.2	22.8	56.0	42.0	54.5	48.2	45.5	35.6	42.3	30.0
Makeshift	5.3	1.5	-	3.7	8.0	5.6	18.2	7.4	9.1	7.4	7.1	4.2
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	81.6	69.5	79.3	78.6	76.0	75.1	59.1	65.1	61.4	60.9	73.5	68.9
Closed pit	2.6	5.6	6.9	3.8	-	9.6	9.1	15.2	6.8	8.9	4.6	8.3
Open pit	6.6	7.1	3.5	4.1	12.0	0.8	4.5	3.8	9.1	9.8	7.1	5.8
Others (pail system, etc.)	-	4.5	3.5	3.2	-	3.0	-	5.5	2.3	6.4	1.0	4.7
None	9.2	13.3	6.9	10.4	12.0	11.5	27.3	10.4	20.5	14.0	13.8	12.3
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	47.4	30.0	41.4	27.9	32.0	21.5	4.5	30.1	29.5	22.9	35.7	27.8
Shared, faucet community water system	21.1	16.7	34.5	18.2	20.0	32.9	31.8	25.2	54.5	20.3	31.6	21.0
Own use, tubed/piped well	13.2	11.8	13.8	14.1	8.0	7.2	9.1	10.2	2.3	3.8	9.7	10.0
Shared, tubed/piped well	14.5	12.0	-	22.5	32.0	16.3	27.3	18.7	6.8	23.1	14.3	16.4
Dugwell	1.3	14.0	6.9	10.2	-	12.9	4.5	5.5	-	2.4	2.0	10.1
Spring, river, stream, etc.	2.6	10.1	-	-	-	-	4.5	0.8	2.3	-	2.0	4.6
Rain	-	-	-	-	-	-	-	-	-	-	-	-
Peddler	-	5.4	3.5	7.1	8.0	9.1	18.2	9.5	4.5	27.5	4.6	9.9

Appendix 1 (continued)

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
Davao City												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	62.1	88.2	42.5	80.9	63.2	81.4	32.5	74.0	-	76.9	52.7	83.2
Light	33.9	9.3	47.5	17.3	32.7	18.6	60.5	22.6	100.0	23.1	41.8	14.4
Makeshift	4.0	2.5	10.0	1.8	4.1	-	6.9	3.4	-	-	5.5	2.4
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	65.4	85.2	80.0	85.0	87.2	76.4	44.1	61.6	41.1	76.9	64.8	78.5
Closed pit	13.2	3.7	7.5	1.8	4.3	2.5	11.0	1.4	58.9	-	11.4	2.7
Open pit	19.1	6.7	5.0	7.1	8.5	8.8	41.9	18.4	-	-	19.9	9.7
Others (pail system, etc.)	2.2	0.4	7.5	1.8	-	4.9	3.0	1.6	-	-	2.9	1.2
None	-	4.1	-	4.4	4.3	7.4	3.0	17.0	-	23.1	1.0	7.9
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	43.3	62.7	47.5	38.6	36.8	21.6	27.9	25.7	-	53.3	39.9	47.4
Shared, faucet community water system	12.8	13.2	17.5	43.1	24.6	21.1	10.1	28.7	41.1	-	14.4	20.8
Own use, tubed/piped well	6.5	1.7	-	1.8	-	-	2.0	1.4	-	-	3.9	1.5
Shared, tubed/piped well...	4.9	6.9	7.5	11.3	12.3	26.5	11.6	22.4	58.9	23.1	7.9	13.0
Dugwell	6.5	2.8	2.5	1.8	8.2	14.2	12.7	0.8	-	-	7.2	3.1
Spring, river, stream, etc.	9.2	5.8	2.5	-	10.0	7.3	16.5	2.9	-	-	9.5	4.5
Rain	12.8	3.9	2.5	-	-	4.4	17.3	10.1	-	-	10.7	4.9
Peddler	4.0	3.1	20.0	3.5	8.2	4.9	2.0	8.0	-	23.6	6.5	4.8

Appendix 2. Tenure Trends by Income Group, Poor vs. Non-poor Households, Philippines

	1985						1991					
	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines												
Poor	100.0	51.8	4.0	7.1	34.7	2.4	100.0	60.7	2.7	5.5	28.5	2.6
Non-poor	100.0	63.1	9.8	6.2	19.2	1.6	100.0	64.3	9.8	5.5	18.2	2.1
Urban												
Poor	100.0	39.4	12.5	13.3	30.4	4.4	100.0	55.9	6.3	7.5	26.6	3.7
Non-poor	100.0	55.4	19.8	8.8	13.9	2.1	100.0	59.3	16.4	6.3	15.5	2.4
Rural												
Poor	100.0	56.8	0.6	4.6	36.4	1.6	100.0	63.7	0.4	4.2	29.7	2.0
Non-poor	100.0	69.4	1.5	4.2	23.7	1.2	100.0	70.8	1.2	4.5	21.8	1.8
NCR												
Poor	100.0	29.3	31.2	12.1	21.3	6.0	100.0	35.3	25.4	6.8	21.9	10.5
Non-poor	100.0	44.7	32.8	9.1	11.4	2.0	100.0	47.0	31.5	6.6	11.8	3.0
Metro Cebu												
Poor	100.0	20.9	13.4	11.9	20.9	32.8	100.0	42.0	6.0	17.9	34.1	-
Non-poor	100.0	48.1	15.5	13.2	6.2	17.1	100.0	46.3	15.7	10.0	24.9	3.1
Davao City												
Poor	100.0	47.1	10.9	10.3	30.2	1.6	100.0	58.3	5.4	4.2	28.6	3.6
Non-poor	100.0	57.8	18.6	9.3	13.7	0.6	100.0	62.3	13.2	3.9	16.9	3.7

Appendix 2. (continued)

	1994						1997					
	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines												
Poor	100.0	62.3	1.9	4.0	28.7	3.1	100.0	62.0	1.9	3.8	28.9	3.4
Non-poor	100.0	67.1	8.3	4.4	17.8	2.5	100.0	65.7	8.4	4.1	18.7	3.0
Urban												
Poor	100.0	58.8	5.0	5.3	26.7	4.3	100.0	53.1	5.7	6.6	28.0	6.6
Non-poor	100.0	62.5	13.4	5.3	15.9	2.8	100.0	61.6	13.8	4.7	15.8	4.1
Rural												
Poor	100.0	64.1	0.3	3.3	29.7	2.6	100.0	65.2	0.5	2.8	29.2	2.3
Non-poor	100.0	73.5	1.2	3.0	20.4	1.9	100.0	71.2	1.2	3.4	22.7	1.5
NCR												
Poor	100.0	37.3	28.4	6.6	17.1	10.6	100.0	37.4	22.7	2.8	19.8	17.3
Non-poor	100.0	50.4	27.5	4.0	13.7	4.3	100.0	50.9	26.1	3.9	12.9	6.2
Metro Cebu												
Poor	100.0	55.1	10.1	8.1	18.5	8.2	100.0	39.7	7.0	15.4	19.6	18.3
Non-poor	100.0	54.4	12.3	14.2	12.6	6.5	100.0	44.6	9.5	11.6	20.6	13.7
Davao City												
Poor	100.0	39.7	-	3.6	54.1	2.6	100.0	41.6	6.8	13.4	38.2	-
Non-poor	100.0	58.4	9.3	6.2	21.4	4.8	100.0	56.3	11.7	7.3	22.8	1.9

Appendix 3. Housing Improvements, Poor vs. Non-Poor Households, Wall Materials, 1985-1997

	1985				1991				1994				1997			
	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift
Philippines																
Poor	100.0	18.7	75.1	6.2	100.0	34.8	61.2	4.0	100.0	33.6	62.6	3.8	100.0	34.9	62.0	3.1
Non-poor	100.0	53.5	44.2	2.2	100.0	72.2	26.2	1.6	100.0	71.4	26.6	2.0	100.0	74.6	23.6	1.7
Urban																
Poor	100.0	25.1	65.7	9.2	100.0	44.7	50.4	4.8	100.0	41.7	53.2	5.1	100.0	42.5	50.9	6.6
Non-poor	100.0	64.8	33.1	2.1	100.0	82.9	15.2	1.9	100.0	80.0	17.8	2.2	100.0	82.0	15.6	2.4
Rural																
Poor	100.0	16.1	78.9	5.0	100.0	28.6	68.0	3.5	100.0	29.5	67.4	3.1	100.0	32.1	66.1	1.8
Non-poor	100.0	44.2	53.4	2.4	100.0	58.1	40.8	1.1	100.0	59.3	39.1	1.6	100.0	64.7	34.4	0.9
NCR																
Poor	100.0	29.8	53.3	16.9	100.0	70.3	15.5	14.2	100.0	57.5	23.9	18.6	100.0	52.8	19.1	28.1
Non-poor	100.0	67.1	30.8	2.1	100.0	90.1	6.8	3.1	100.0	86.8	9.3	3.9	100.0	87.5	7.3	5.1
Metro Cebu																
Poor	100.0	26.9	59.7	13.4	100.0	33.9	60.1	6.0	100.0	34.6	57.1	8.2	100.0	35.8	49.2	15.0
Non-poor	100.0	62.8	33.3	3.9	100.0	75.1	21.7	3.2	100.0	65.7	29.7	4.5	100.0	68.2	28.5	3.3
Davao City																
Poor	100.0	23.2	67.1	9.7	100.0	60.1	30.4	9.5	100.0	53.6	34.1	12.4	100.0	68.9	26.0	5.2
Non-poor	100.0	69.5	27.4	3.1	100.0	84.5	13.6	1.9	100.0	82.9	15.5	1.5	100.0	85.1	12.9	2.0

Appendix 4. Housing Improvements, Poor vs. Non-Poor Households, Type of Toilet Facility, 1985-1997

	1985						1991					
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None
Philippines												
Poor	100.0	34.9	19.0	20.2	4.6	21.3	100.0	37.1	19.9	16.6	4.0	22.4
Non-poor	100.0	65.8	14.7	10.1	3.0	6.4	100.0	68.3	12.9	6.9	3.9	8.0
Urban												
Poor	100.0	50.2	16.7	12.7	5.5	14.8	100.0	45.3	18.7	11.7	5.4	18.9
Non-poor	100.0	81.7	8.8	3.5	2.9	3.1	100.0	79.0	9.5	3.1	4.4	4.1
Rural												
Poor	100.0	28.7	20.0	23.3	4.2	23.9	100.0	31.9	20.7	19.8	3.0	24.6
Non-poor	100.0	52.8	19.5	15.6	3.0	9.1	100.0	54.2	17.5	11.9	3.1	13.3
NCR												
Poor	100.0	63.4	13.7	6.4	9.3	7.2	100.0	62.1	9.1	4.0	13.0	11.8
Non-poor	100.0	84.9	6.4	1.9	4.8	2.0	100.0	85.3	6.6	1.3	4.8	2.0
Metro Cebu												
Poor	100.0	49.3	11.9	11.9	3.0	23.9	100.0	20.0	26.0	6.0	18.1	29.9
Non-poor	100.0	86.0	0.8	4.7	-	8.5	100.0	64.7	5.4	1.3	22.4	6.3
Davao City												
Poor	100.0	41.3	13.9	36.3	5.9	2.7	100.0	24.4	49.4	17.3	-	8.9
Non-poor	100.0	78.2	10.0	10.6	1.2	-	100.0	67.3	25.1	3.4	0.9	3.3

Appendix 4 (continued)

	1994						1997					
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None
Philippines												
Poor	100.0	36.9	19.9	17.8	3.6	21.7	100.0	40.4	17.8	17.7	3.9	20.2
Non-poor	100.0	75.5	9.4	6.4	2.1	6.7	100.0	75.5	9.3	5.8	3.6	5.9
Urban												
Poor	100.0	48.7	14.9	14.1	4.1	18.2	100.0	52.4	14.5	12.1	5.1	15.9
Non-poor	100.0	85.1	5.7	3.2	2.0	4.0	100.0	82.9	7.0	2.9	3.8	3.5
Rural												
Poor	100.0	31.0	22.4	19.7	3.4	23.5	100.0	36.0	19.0	19.8	3.4	21.8
Non-poor	100.0	61.8	14.7	10.8	2.2	10.4	100.0	65.6	12.3	9.7	3.2	9.2
NCR												
Poor	100.0	72.8	8.1	4.0	8.7	6.4	100.0	68.8	10.8	3.6	8.5	8.3
Non-poor	100.0	93.1	3.2	1.0	1.5	1.3	100.0	85.7	6.9	1.2	4.7	1.4
Metro Cebu												
Poor	100.0	28.4	16.5	18.5	4.1	32.6	100.0	29.5	4.9	14.6	11.5	39.5
Non-poor	100.0	55.6	12.4	10.0	7.2	14.9	100.0	72.2	8.6	5.0	4.1	10.1
Davao City												
Poor	100.0	38.0	5.2	47.1	-	9.6	100.0	50.4	4.7	17.0	5.0	22.9
Non-poor	100.0	85.5	4.4	5.0	2.0	3.1	100.0	82.3	2.5	8.7	0.7	5.9

Appendix 5. Housing Improvements, Poor vs. Non-Poor Households, Source of Water Supply, 1985-1997

	1985									1991								
	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, Tubed piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler
Philippines																		
Poor	100.0	7.7	19.5	11.3	20.6	23.2	14.2	1.4	2.1	100.0	7.9	21.8	10.5	23.2	20.5	13.8	0.6	1.8
Non-poor	100.0	27.6	16.0	21.6	13.3	12.6	5.7	1.1	2.1	100.0	30.9	18.2	16.8	14.6	11.0	5.0	0.6	2.8
Urban																		
Poor	100.0	19.3	29.4	10.2	21.1	10.2	3.4	0.4	5.9	100.0	13.1	24.9	10.4	24.3	16.0	7.4	0.4	3.4
Non-poor	100.0	48.3	16.5	15.8	8.7	4.7	0.7	0.4	3.9	100.0	45.2	18.5	13.8	10.7	5.8	1.7	0.2	4.0
Rural																		
Poor	100.0	3.1	15.4	11.7	20.4	28.5	18.5	1.7	0.6	100.0	4.6	19.8	10.5	22.5	23.3	17.8	0.7	0.8
Non-poor	100.0	9.8	15.5	26.4	17.2	19.0	9.8	1.7	0.6	100.0	12.0	17.8	20.8	19.8	17.9	9.4	1.1	1.1
NCR																		
Poor	100.0	31.7	37.4	4.1	9.8	2.9	-	-	14.0	100.0	28.1	39.2	2.8	8.9	4.2	-	-	16.9
Non-poor	100.0	63.7	17.8	4.9	3.6	2.4	-	-	7.6	100.0	63.1	19.8	3.9	4.3	1.9	0.0	-	7.0
Metro Cebu																		
Poor	100.0	13.4	43.3	6.0	23.9	3.0	4.5	-	6.0	100.0	4.0	22.0	-	45.9	4.0	14.0	-	10.0
Non-poor	100.0	47.3	25.6	11.6	9.3	1.6	0.8	-	3.9	100.0	35.3	20.7	12.9	19.1	2.8	2.2	-	6.9
Davao City																		
Poor	100.0	17.3	19.0	5.4	8.4	10.1	14.2	17.4	8.1	100.0	18.5	32.1	8.3	20.8	4.2	3.0	8.9	4.2
Non-poor	100.0	52.8	11.8	3.0	7.6	5.5	6.9	6.9	5.6	100.0	55.5	16.9	4.7	9.0	2.9	3.7	4.2	3.1

Appendix 5 (continued)

	1994									1997								
	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dugwell	Spring, river stream, etc	Rain	Peddler	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, Tubed piped well	Dugwell	Spring, river stream, etc	Rain,	Peddler
Philippines																		
Poor	100.0	7.1	22.8	11.5	23.7	18.9	13.9	0.7	1.5	100.0	5.0	23.6	10.4	23.8	19.3	15.6	0.4	1.9
Non-poor	100.0	31.4	19.2	18.2	15.4	8.6	3.9	0.6	2.7	100.0	29.4	19.2	18.1	16.8	8.1	4.7	0.3	3.4
Urban																		
Poor	100.0	12.4	26.0	11.7	25.9	13.5	7.1	0.3	3.0	100.0	12.1	29.1	11.0	24.1	12.3	6.2	0.3	4.8
Non-poor	100.0	44.1	18.9	14.4	12.7	4.7	0.9	0.4	3.8	100.0	43.1	19.4	13.9	12.9	4.2	1.2	0.1	5.2
Rural																		
Poor	100.0	4.4	21.2	11.3	22.5	21.7	17.3	0.9	0.7	100.0	2.4	21.6	10.1	23.7	21.8	19.1	0.5	0.9
Non-poor	100.0	13.3	19.7	23.5	19.2	14.2	8.0	0.9	1.1	100.0	10.9	19.0	23.6	22.1	13.3	9.4	0.6	1.0
NGR																		
Poor	100.0	33.3	37.5	2.7	9.2	4.6	-	-	12.8	100.0	17.3	42.0	2.3	14.8	4.7	-	-	18.9
Non-poor	100.0	61.2	20.9	3.9	4.8	2.6	0.0	-	6.6	100.0	51.4	22.7	5.9	8.6	1.7	-	-	9.7
Metro Cebu																		
Poor	100.0	6.1	26.4	2.1	24.3	20.5	14.4	2.1	4.1	100.0	9.1	27.4	3.7	18.5	10.2	11.6	-	19.5
Non-poor	100.0	35.0	21.3	8.4	19.0	8.4	2.6	1.0	4.2	100.0	29.4	20.5	10.5	16.2	10.1	4.1	-	9.1
Davao City																		
Poor	100.0	4.4	41.2	-	11.5	14.8	14.0	7.8	6.2	100.0	21.5	32.4	3.0	14.2	13.5	6.0	6.0	3.3
Non-poor	100.0	63.2	20.0	3.9	5.9	1.1	1.2	2.4	2.3	100.0	50.9	19.2	1.2	12.9	1.7	4.3	4.8	5.0

The Dynamics of Housing Demand in the Philippines

Appendix 6. Distribution of Households by Lifecycle and Tenure, Philippines, 1985-1997

		1985 Tenure Status				
	Total	Own or owner-like possession of house	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of	Own/ rent-free house, rent-free lot w/o consent
Philippines						
single/separated, hhsiz=1	100.0	54.2	12.7	0.9	32.2	-
single w/ hhsiz>1	100.0	64.8	13.7	3.8	15.1	2.6
separated, hhsiz>1	100.0	48.8	19.1	6.3	23.9	2.0
married, hhead<30, hsize< or=3	100.0	47.0	10.4	5.6	35.3	1.7
married, hhead<30, 3<hsize<6	100.0	44.1	9.3	7.6	36.4	2.6
married, hhead<30, hsize 6+	100.0	45.1	11.2	7.0	35.4	1.4
married, hhead 30-39, hsize< or=3	100.0	52.1	13.6	7.2	24.8	2.3
married, hhead 30-39, 3<hsize<6	100.0	49.6	11.4	6.7	30.0	2.3
married, hhead 30-39, hsize 6+	100.0	48.6	7.6	7.0	34.5	2.4
married, hhead 40-49, hsize< or=3	100.0	54.6	9.7	5.5	28.3	1.8
married, hhead 40-49, 3<hsize<6	100.0	57.6	9.6	6.5	24.2	2.1
married, hhead 40-49, hsize 6+	100.0	58.0	5.5	8.8	25.7	2.0
married, hhead 50+, hsize< or=3	100.0	70.7	2.9	5.3	20.6	0.5
married, hhead 50+, 3<hsize<6	100.0	67.7	4.4	5.6	20.3	2.0
married, hhead 50+, hsize 6+	100.0	65.9	5.4	7.1	20.1	1.6
Urban						
single/separated, hhsiz=1	100.0	45.8	27.6	-	26.6	-
single w/ hhsiz>1	100.0	55.5	25.8	5.9	10.5	2.3
separated, hhsiz>1	100.0	39.4	28.5	7.2	22.9	1.9
married, hhead<30, hsize< or=3	100.0	28.8	29.7	10.9	29.1	1.6
married, hhead<30, 3<hsize<6	100.0	30.3	27.2	11.4	26.1	5.0
married, hhead<30, hsize 6+	100.0	33.1	23.4	12.5	27.3	3.7
married, hhead 30-39, hsize< or=3	100.0	37.2	26.3	9.5	22.9	2.1
married, hhead 30-39, 3<hsize<6	100.0	41.5	24.0	8.7	22.7	3.1
married, hhead 30-39, hsize 6+	100.0	40.6	21.0	11.3	24.4	2.7
married, hhead 40-49, hsize< or=3	100.0	47.5	27.2	8.8	13.9	2.6
married, hhead 40-49, 3<hsize<6	100.0	47.0	20.4	7.8	21.6	3.3
married, hhead 40-49, hsize 6+	100.0	49.4	13.5	14.3	20.0	2.9
married, hhead 50+, hsize< or=3	100.0	63.8	10.1	8.8	16.2	1.0
married, hhead 50+, 3<hsize<6	100.0	60.5	11.2	9.7	14.8	3.7
married, hhead 50+, hsize 6+	100.0	61.7	11.6	10.7	13.9	2.1
Rural						
single/separated, hhsiz=1	100.0	59.0	4.2	1.4	35.4	-
single w/ hhsiz>1	100.0	74.7	0.8	1.5	20.0	3.0
separated, hhsiz>1	100.0	62.6	5.3	4.8	25.3	2.0
married, hhead<30, hsize< or=3	100.0	54.7	2.3	3.4	37.9	1.7
married, hhead<30, 3<hsize<6	100.0	50.4	1.1	5.8	41.2	1.6
married, hhead<30, hsize 6+	100.0	52.2	3.8	3.7	40.3	-
married, hhead 30-39, hsize< or=3	100.0	62.6	3.2	5.5	26.2	2.4
married, hhead 30-39, 3<hsize<6	100.0	55.6	2.0	5.3	35.4	1.7
married, hhead 30-39, hsize 6+	100.0	52.4	1.3	4.9	39.2	2.2
married, hhead 40-49, hsize< or=3	100.0	58.6	-	3.7	36.3	1.4
married, hhead 40-49, 3<hsize<6	100.0	65.6	1.5	5.5	26.2	1.2
married, hhead 40-49, hsize 6+	100.0	63.1	0.8	5.6	29.0	1.4
married, hhead 50+, hsize< or=3	100.0	73.2	0.2	3.9	22.3	0.3
married, hhead 50+, 3<hsize<6	100.0	71.9	0.4	3.2	23.5	1.0
married, hhead 50+, hsize 6+	100.0	69.2	0.4	4.2	25.0	1.2

Appendix 6 (continued)

	1985 Tenure Status					
	Total	Own or owner-like possession of house	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of	Own/ rent-free house, rent-free lot w/o consent
NCR						
single/separated, hsize=1	100.0	10.6	64.5	-	25.0	-
single w/ hsize>1	100.0	37.2	50.2	5.6	7.1	-
separated, hsize>1	100.0	31.0	35.8	9.8	23.4	-
married, hhead<30, hsize< or=3	100.0	20.8	45.3	12.7	21.3	-
married, hhead<30, 3<hsize<6	100.0	30.1	46.5	5.7	13.5	4.1
married, hhead<30, hsize 6+	100.0	24.6	40.1	7.4	23.0	4.9
married, hhead 30-39, hsize< or=3	100.0	25.7	45.1	6.1	19.0	4.1
married, hhead 30-39, 3<hsize<6	100.0	37.6	35.7	5.6	16.7	4.4
married, hhead 30-39, hsize 6+	100.0	35.0	41.9	8.1	13.4	1.6
married, hhead 40-49, hsize< or=3	100.0	22.3	58.9	7.6	7.8	3.5
married, hhead 40-49, 3<hsize<6	100.0	36.8	34.5	6.3	17.8	4.5
married, hhead 40-49, hsize 6+	100.0	42.4	26.3	14.1	14.2	2.9
married, hhead 50+, hsize< or=3	100.0	55.9	25.6	7.2	6.5	4.7
married, hhead 50+, 3<hsize<6	100.0	48.8	25.2	11.1	11.7	2.2
married, hhead 50+, hsize 6+	100.0	53.3	23.2	11.1	9.6	2.7
Metro Cebu						
single/separated, hsize=1	100.0	-	75.0	-	25.0	- 9
single w/ hsize>1	100.0	71.4	14.3	14.3	-	-
separated, hsize>1	100.0	50.0	50.0	-	-	-
married, hhead<30, hsize< or=3	100.0	33.3	-	-	33.3	33.3
married, hhead<30, 3<hsize<6	100.0	11.1	33.3	-	11.1	44.4
married, hhead<30, hsize 6+	100.0	33.4	66.6	-	-	-
married, hhead 30-39, hsize< or=3	100.0	25.0	-	25.0	25.0	25.0
married, hhead 30-39, 3<hsize<6	100.0	38.9	16.7	11.1	16.7	16.7
married, hhead 30-39, hsize 6+	100.0	23.5	29.4	11.8	11.8	23.5
married, hhead 40-49, hsize< or=3	100.0	100.0	-	-	-	-
married, hhead 40-49, 3<hsize<6	100.0	66.7	-	-	-	33.3
married, hhead 40-49, hsize 6+	100.0	32.1	7.1	25.0	10.7	25.0
married, hhead 50+, hsize< or=3	100.0	40.0	20.0	-	40.0	-
married, hhead 50+, 3<hsize<6	100.0	39.3	3.6	7.1	14.3	35.7
married, hhead 50+, hsize 6+	100.0	46.7	16.7	20.0	3.3	13.3
Davao City						
single/separated, hsize=1	100.0	29.5	20.5	-	50.0	-
single w/ hsize>1	100.0	77.5	22.5	-	-	-
separated, hsize>1	100.0	46.2	53.8	-	-	-
married, hhead<30, hsize< or=3	100.0	56.4	12.7	-	30.9	-
married, hhead<30, 3<hsize<6	100.0	11.9	47.4	11.9	28.9	-
married, hhead<30, hsize 6+	100.0	33.3	50.0	-	16.7	-
married, hhead 30-39, hsize< or=3	100.0	50.0	50.0	-	-	-
married, hhead 30-39, 3<hsize<6	100.0	34.3	22.1	15.7	23.4	4.5
married, hhead 30-39, hsize 6+	100.0	44.5	14.6	-	37.2	3.7
married, hhead 40-49, hsize< or=3	100.0	50.0	33.3	16.7	-	-
married, hhead 40-49, 3<hsize<6	100.0	57.6	21.2	-	21.2	-
married, hhead 40-49, hsize 6+	100.0	59.2	5.2	7.8	27.8	-
married, hhead 50+, hsize< or=3	100.0	91.5	8.5	-	-	-
married, hhead 50+, 3<hsize<6	100.0	62.8	8.0	13.7	15.5	-
married, hhead 50+, hsize 6+	100.0	59.9	5.0	20.2	14.8	-

The Dynamics of Housing Demand in the Philippines

Appendix 6 (continued)

Appendix 6 (continued)

	1991 Tenure Status					
	Total	Own or owner-like possession of house and lot	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines						
single/separated, hsize=1	100.0	56.1	12.9	3.2	25.9	1.9
single w/ hsize>1	100.0	65.0	14.6	4.9	14.6	0.9
separated, hsize>1	100.0	57.2	13.2	6.1	20.1	3.5
married, hhead<30, hsize< or =3	100.0	52.2	9.9	5.9	30.2	1.9
married, hhead<30, 3<hsize<6	100.0	51.9	8.2	4.9	32.8	2.3
married, hhead<30, hsize 6+	100.0	53.5	9.0	5.0	30.0	2.4
married, hhead 30-39, hsize< or =3	100.0	54.3	14.9	3.6	25.1	2.1
married, hhead 30-39, 3<hsize<6	100.0	55.4	11.2	6.1	24.1	3.3
married, hhead 30-39, hsize 6+	100.0	57.3	5.5	6.7	27.6	2.8
married, hhead 40-49, hsize< or =3	100.0	62.9	10.6	4.2	20.2	2.1
married, hhead 40-49, 3<hsize<6	100.0	62.5	9.7	5.3	20.2	2.2
married, hhead 40-49, hsize 6+	100.0	61.0	5.4	5.8	25.4	2.5
married, hhead 50+, hsize< or =3	100.0	73.4	2.9	4.1	17.5	2.1
married, hhead 50+, 3<hsize<6	100.0	70.6	3.9	5.8	17.5	2.1
married, hhead 50+, hsize 6+	100.0	69.6	4.7	5.7	18.0	2.0
Urban						
single/separated, hsize=1	100.0	51.6	22.0	4.8	19.9	1.7
single w/ hsize>1	100.0	60.7	22.4	2.9	13.1	1.0
separated, hsize>1	100.0	52.8	19.7	7.5	16.7	3.3
married, hhead<30, hsize< or =3	100.0	38.1	22.4	9.4	28.1	2.1
married, hhead<30, 3<hsize<6	100.0	44.0	18.0	4.6	30.0	3.4
married, hhead<30, hsize 6+	100.0	46.7	19.0	7.1	24.4	2.8
married, hhead 30-39, hsize< or =3	100.0	48.0	24.8	2.8	21.6	2.9
married, hhead 30-39, 3<hsize<6	100.0	49.6	19.8	6.7	20.3	3.6
married, hhead 30-39, hsize 6+	100.0	53.4	11.4	7.3	23.9	3.9
married, hhead 40-49, hsize< or =3	100.0	54.4	19.2	6.6	15.8	3.9
married, hhead 40-49, 3<hsize<6	100.0	57.9	17.2	6.7	16.0	2.2
married, hhead 40-49, hsize 6+	100.0	57.4	10.4	7.1	22.1	3.0
married, hhead 50+, hsize< or =3	100.0	70.3	6.2	6.0	15.0	2.6
married, hhead 50+, 3<hsize<6	100.0	68.4	7.7	8.0	13.5	2.3
married, hhead 50+, hsize 6+	100.0	66.4	8.5	7.0	15.7	2.5
Rural						
single/separated, hsize=1	100.0	59.5	6.0	1.9	30.5	2.1
single w/ hsize>1	100.0	72.7	0.6	8.6	17.4	0.7
separated, hsize>1	100.0	65.1	1.3	3.6	26.1	3.8
married, hhead<30, hsize< or =3	100.0	62.7	0.5	3.3	31.8	1.6
married, hhead<30, 3<hsize<6	100.0	57.9	0.7	5.0	34.9	1.5
married, hhead<30, hsize 6+	100.0	59.1	0.9	3.3	34.6	2.1
married, hhead 30-39, hsize< or =3	100.0	61.9	3.0	4.6	29.4	1.1
married, hhead 30-39, 3<hsize<6	100.0	62.0	1.2	5.4	28.4	2.9
married, hhead 30-39, hsize 6+	100.0	60.6	0.6	6.2	30.7	1.9
married, hhead 40-49, hsize< or =3	100.0	72.5	0.8	1.5	25.2	-
married, hhead 40-49, 3<hsize<6	100.0	68.1	0.9	3.7	25.1	2.2
married, hhead 40-49, hsize 6+	100.0	64.6	0.4	4.4	28.6	2.1
married, hhead 50+, hsize< or =3	100.0	75.4	0.8	2.9	19.1	1.8
married, hhead 50+, 3<hsize<6	100.0	72.7	0.5	3.7	21.2	1.9
married, hhead 50+, hsize 6+	100.0	73.2	0.6	4.2	20.6	1.5

Appendix 6 (continued)

	1991 Tenure Status					
	Total	Own or owner-like possession of house and lot	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of	Own/ rent-free house, rent-free lot w/o consent of owner
NCR						
single/separated, hhsz=1	100.0	28.1	44.9	-	14.9	12.2
single w/ hhsz>1	100.0	41.1	45.7	0.5	11.2	1.4
separated, hhsz>1	100.0	44.2	32.6	5.0	15.3	2.9
married, hhead<30, hsize< or =3	100.0	28.1	43.3	5.1	22.2	1.3
married, hhead<30, 3<hsize<6	100.0	26.6	43.7	4.6	21.0	4.0
married, hhead<30, hsize 6+	100.0	26.8	47.8	4.8	19.0	1.5
married, hhead 30-39, hsize< or =3	100.0	36.0	44.5	2.1	12.6	4.8
married, hhead 30-39, 3<hsize<6	100.0	37.2	39.3	3.9	15.5	4.1
married, hhead 30-39, hsize 6+	100.0	43.3	26.6	6.6	16.1	7.4
married, hhead 40-49, hsize< or =3	100.0	38.0	38.7	7.8	10.9	4.6
married, hhead 40-49, 3<hsize<6	100.0	43.8	35.9	6.3	11.6	2.3
married, hhead 40-49, hsize 6+	100.0	48.2	24.4	8.6	13.8	5.0
married, hhead 50+, hsize< or =3	100.0	59.5	21.9	8.1	6.9	3.5
married, hhead 50+, 3<hsize<6	100.0	58.3	20.9	10.7	8.0	2.0
married, hhead 50+, hsize 6+	100.0	56.4	21.1	6.6	11.6	4.3
Metro Cebu						
single/separated, hhsz=1	100.0	16.7	50.0	16.7	16.7	-
single w/ hhsz>1	100.0	72.7	9.1	9.1	9.1	-
separated, hhsz>1	100.0	50.2	25.1	24.7	-	-
married, hhead<30, hsize< or =3	100.0	20.1	40.1	19.8	20.1	-
married, hhead<30, 3<hsize<6	100.0	44.5	11.0	11.0	27.8	5.6
married, hhead<30, hsize 6+	100.0	25.0	25.0	-	50.0	-
married, hhead 30-39, hsize< or =3	100.0	30.8	22.9	-	46.3	-
married, hhead 30-39, 3<hsize<6	100.0	25.0	23.2	17.8	32.1	1.8
married, hhead 30-39, hsize 6+	100.0	36.0	10.2	17.9	30.8	5.2
married, hhead 40-49, hsize< or =3	100.0	33.3	50.0	-	-	16.7
married, hhead 40-49, 3<hsize<6	100.0	43.5	26.1	4.4	26.1	-
married, hhead 40-49, hsize 6+	100.0	54.3	5.7	8.5	31.5	-
married, hhead 50+, hsize< or =3	100.0	57.8	-	5.3	36.9	-
married, hhead 50+, 3<hsize<6	100.0	59.0	5.1	5.1	25.7	5.1
married, hhead 50+, hsize 6+	100.0	57.7	8.9	15.5	17.8	-
Davao City						
single/separated, hhsz=1	100.0	-	40.0	20.0	40.0	-
single w/ hhsz>1	100.0	61.9	28.6	-	9.5	-
separated, hhsz>1	100.0	33.3	66.7	-	-	-
married, hhead<30, hsize< or =3	100.0	-	28.6	-	71.4	-
married, hhead<30, 3<hsize<6	100.0	43.4	17.0	-	39.6	-
married, hhead<30, hsize 6+	100.0	58.4	-	-	16.7	25.0
married, hhead 30-39, hsize< or =3	100.0	-	35.3	-	64.7	-
married, hhead 30-39, 3<hsize<6	100.0	54.4	13.2	4.4	24.6	3.5
married, hhead 30-39, hsize 6+	100.0	53.5	9.9	6.9	24.8	5.0
married, hhead 40-49, hsize< or =3	100.0	100.0	-	-	-	-
married, hhead 40-49, 3<hsize<6	100.0	63.9	6.0	-	16.9	13.2
married, hhead 40-49, hsize 6+	100.0	60.5	12.3	7.0	20.2	-
married, hhead 50+, hsize< or =3	100.0	82.9	9.8	-	-	7.3
married, hhead 50+, 3<hsize<6	100.0	84.8	2.5	2.5	7.6	2.5
married, hhead 50+, hsize 6+	100.0	89.7	3.0	6.1	18.2	3.0

The Dynamics of Housing Demand in the Philippines

Appendix 6 (continued)

		1994 Tenure Status				
	Total	Own or owner-like possession of house and lot	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines						
single/separated, hsize=1	100.0	57.5	9.6	1.0	30.5	1.4
single w/ hsize>1	100.0	62.0	13.2	5.7	17.3	1.8
separated, hsize>1	100.0	57.0	13.6	4.2	21.3	3.8
married, hhead<30, hsize< or =3	100.0	49.6	12.8	3.5	31.8	2.3
married, hhead<30, 3<hsize<6	100.0	53.7	7.9	4.3	31.0	3.1
married, hhead<30, hsize 6+	100.0	56.3	6.2	5.3	26.9	5.3
married, hhead 30-39, hsize< or =3	100.0	55.1	13.5	3.4	25.1	2.9
married, hhead 30-39, 3<hsize<6	100.0	57.9	9.6	4.7	25.2	2.7
married, hhead 30-39, hsize 6+	100.0	58.2	5.4	4.6	28.2	3.7
married, hhead 40-49, hsize< or =3	100.0	60.7	8.1	4.4	23.4	3.4
married, hhead 40-49, 3<hsize<6	100.0	64.1	8.9	5.3	18.6	3.2
married, hhead 40-49, hsize 6+	100.0	63.2	4.9	4.2	24.6	3.2
married, hhead 50+, hsize< or =3	100.0	74.5	2.9	3.0	17.4	2.2
married, hhead 50+, 3<hsize<6	100.0	72.5	3.9	4.4	17.2	1.9
married, hhead 50+, hsize 6+	100.0	72.8	3.8	4.1	17.0	2.2
Urban						
single/separated, hsize=1	100.0	54.9	15.9	0.8	27.8	0.7
single w/ hsize>1	100.0	56.2	20.3	7.3	14.0	2.2
separated, hsize>1	100.0	54.7	21.0	4.5	15.9	3.9
married, hhead<30, hsize< or =3	100.0	46.5	20.4	4.1	27.2	1.9
married, hhead<30, 3<hsize<6	100.0	51.2	14.7	4.7	25.1	4.3
married, hhead<30, hsize 6+	100.0	48.1	11.2	6.3	25.6	8.7
married, hhead 30-39, hsize< or =3	100.0	50.3	22.1	2.9	21.6	3.1
married, hhead 30-39, 3<hsize<6	100.0	52.5	16.9	5.3	22.6	2.7
married, hhead 30-39, hsize 6+	100.0	55.7	11.0	5.0	23.7	4.6
married, hhead 40-49, hsize< or =3	100.0	55.4	14.4	4.7	21.4	4.0
married, hhead 40-49, 3<hsize<6	100.0	60.1	15.0	6.8	14.4	3.6
married, hhead 40-49, hsize 6+	100.0	58.9	9.7	4.5	23.2	3.7
married, hhead 50+, hsize< or =3	100.0	70.3	6.6	4.3	15.8	3.0
married, hhead 50+, 3<hsize<6	100.0	69.6	7.2	5.9	14.6	2.8
married, hhead 50+, hsize 6+	100.0	70.8	7.0	5.8	14.2	2.1
Rural						
single/separated, hsize=1	100.0	60.5	2.5	1.3	33.5	2.2
single w/ hsize>1	100.0	71.2	1.9	3.1	22.5	1.2
separated, hsize>1	100.0	61.2	-	3.8	31.3	3.7
married, hhead<30, hsize< or =3	100.0	53.8	2.8	2.8	37.7	2.9
married, hhead<30, 3<hsize<6	100.0	55.8	2.0	4.0	36.2	2.0
married, hhead<30, hsize 6+	100.0	63.4	1.8	4.4	28.0	2.4
married, hhead 30-39, hsize< or =3	100.0	61.3	2.6	4.0	29.5	2.6
married, hhead 30-39, 3<hsize<6	100.0	64.4	0.8	3.9	28.3	2.6
married, hhead 30-39, hsize 6+	100.0	60.1	1.1	4.2	31.6	3.0
married, hhead 40-49, hsize< or =3	100.0	67.4	0.1	4.0	25.9	2.7
married, hhead 40-49, 3<hsize<6	100.0	69.3	1.0	3.3	23.9	2.5
married, hhead 40-49, hsize 6+	100.0	67.1	0.6	3.8	25.8	2.7
married, hhead 50+, hsize< or =3	100.0	77.1	0.5	2.3	18.5	1.7
married, hhead 50+, 3<hsize<6	100.0	75.5	0.6	3.0	19.8	1.1
married, hhead 50+, hsize 6+	100.0	74.9	0.4	2.4	20.0	2.4

Appendix 6 (continued)

		1994 Tenure Status				
	Total	Own or owner-like possession of house and lot	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
NCR						
single/separated, hhsz=1	100.0	43.1	33.5	-	23.4	-
single w/hhsz>1	100.0	34.2	44.6	6.7	12.1	2.5
separated, hhsz>1	100.0	42.3	35.1	1.3	13.4	8.0
married, rhead<30, hsz< or =3	100.0	38.1	34.1	3.1	22.0	2.8
married, rhead<30, 3<hsz<6	100.0	38.7	29.4	2.5	25.6	3.8
married, rhead<30, hsz 6+	100.0	21.4	27.3	11.8	28.8	10.6
married, rhead 30-39, hsz< or =3	100.0	35.2	39.9	2.2	17.6	5.1
married, rhead 30-39, 3<hsz<6	100.0	40.8	35.7	3.2	15.9	4.4
married, rhead 30-39, hsz 6+	100.0	43.3	25.5	4.0	19.9	7.3
married, rhead 40-49, hsz< or =3	100.0	43.0	30.5	1.0	16.8	8.7
married, rhead 40-49, 3<hsz<6	100.0	47.7	31.3	4.8	11.0	5.2
married, rhead 40-49, hsz 6+	100.0	46.3	27.7	3.4	16.3	6.3
married, rhead 50+, hsz< or =3	100.0	59.6	25.6	3.2	8.1	3.5
married, rhead 50+, 3<hsz<6	100.0	58.4	20.9	5.8	10.9	4.0
married, rhead 50+, hsz 6+	100.0	65.7	19.0	5.2	7.6	2.5
Metro Cebu						
single/separated, hhsz=1	100.0	-	100.0	-	-	-
single w/hhsz>1	100.0	66.4	-	11.2	22.4	-
separated, hhsz>1	100.0	75.0	25.0	-	-	-
married, rhead<30, hsz< or =3	100.0	16.7	50.0	-	33.3	-
married, rhead<30, 3<hsz<6	100.0	57.3	9.4	14.2	9.4	9.6
married, rhead<30, hsz 6+	100.0	12.5	12.5	12.5	24.7	37.6
married, rhead 30-39, hsz< or =3	100.0	33.2	33.5	10.9	22.4	-
married, rhead 30-39, 3<hsz<6	100.0	34.3	23.7	15.6	23.8	2.7
married, rhead 30-39, hsz 6+	100.0	59.6	10.7	16.1	8.1	5.5
married, rhead 40-49, hsz< or =3	100.0	25.2	24.5	25.2	25.2	-
married, rhead 40-49, 3<hsz<6	100.0	59.5	9.2	12.5	12.6	6.3
married, rhead 40-49, hsz 6+	100.0	62.4	7.5	7.5	17.6	5.0
married, rhead 50+, hsz< or =3	100.0	41.7	16.7	16.7	8.3	16.7
married, rhead 50+, 3<hsz<6	100.0	66.7	2.2	8.9	13.3	8.9
married, rhead 50+, hsz 6+	100.0	60.0	6.0	17.9	8.0	8.0
Davao City						
single/separated, hhsz=1	-	-	-	-	-	-
single w/hhsz>1	100.0	38.2	9.6	23.5	28.7	-
separated, hhsz>1	100.0	-	-	20.3	79.7	-
married, rhead<30, hsz< or =3	100.0	24.7	16.9	-	58.4	-
married, rhead<30, 3<hsz<6	100.0	43.0	23.7	-	23.7	9.6
married, rhead<30, hsz 6+	100.0	54.9	-	-	45.1	-
married, rhead 30-39, hsz< or =3	100.0	63.4	18.3	-	18.3	-
married, rhead 30-39, 3<hsz<6	100.0	45.7	13.1	6.4	32.2	2.6
married, rhead 30-39, hsz 6+	100.0	47.4	6.7	6.7	33.3	5.8
married, rhead 40-49, hsz< or =3	100.0	75.9	-	-	24.1	-
married, rhead 40-49, 3<hsz<6	100.0	62.0	-	4.2	20.5	13.4
married, rhead 40-49, hsz 6+	100.0	43.3	9.7	5.8	34.4	6.7
married, rhead 50+, hsz< or =3	100.0	24.3	17.3	-	41.1	17.3
married, rhead 50+, 3<hsz<6	100.0	79.7	9.6	4.8	3.5	2.4
married, rhead 50+, hsz 6+	100.0	63.5	6.4	10.1	20.0	-

The Dynamics of Housing Demand in the Philippines

Appendix 6 (continued)

		1997 Tenure Status				
	Total	Own or owner-like possession of house and lot	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines						
single/separated, hhsz=1	100.0	53.0	14.5	4.0	23.9	4.5
single w/ hhsz>1	100.0	64.2	15.1	2.8	15.6	2.2
separated, hhsz>1	100.0	62.7	11.0	4.1	18.7	3.5
married, hhead<30, hsize< or =3	100.0	49.6	15.4	4.1	27.8	3.1
married, hhead<30, 3<hsize<6	100.0	53.5	9.7	2.2	30.4	4.3
married, hhead<30, hsize 6+	100.0	53.9	9.5	3.9	30.1	2.5
married, hhead 30-39, hsize< or =3	100.0	55.3	15.8	3.0	24.0	1.9
married, hhead 30-39, 3<hsize<6	100.0	58.8	9.0	3.7	25.2	3.3
married, hhead 30-39, hsize 6+	100.0	60.4	4.5	3.8	27.2	4.0
married, hhead 40-49, hsize< or =3	100.0	61.1	9.2	3.6	21.9	4.2
married, hhead 40-49, 3<hsize<6	100.0	64.6	7.7	4.0	20.9	2.8
married, hhead 40-49, hsize 6+	100.0	63.1	4.4	4.8	23.8	3.8
married, hhead 50+, hsize< or =3	100.0	71.3	2.9	3.7	20.1	2.1
married, hhead 50+, 3<hsize<6	100.0	71.6	3.9	4.5	17.6	2.4
married, hhead 50+, hsize 6+	100.0	71.3	3.6	5.0	16.8	3.3
Urban						
single/separated, hhsz=1	100.0	42.5	23.6	4.3	24.0	5.6
single w/ hhsz>1	100.0	59.2	22.3	3.0	12.6	2.9
separated, hhsz>1	100.0	61.7	16.1	3.1	14.4	4.7
married, hhead<30, hsize< or =3	100.0	40.1	31.5	5.0	19.6	3.7
married, hhead<30, 3<hsize<6	100.0	43.7	20.3	2.5	28.2	5.3
married, hhead<30, hsize 6+	100.0	49.7	18.1	5.3	24.7	2.1
married, hhead 30-39, hsize< or =3	100.0	48.3	28.8	2.7	17.6	2.6
married, hhead 30-39, 3<hsize<6	100.0	52.3	16.4	4.2	22.4	4.7
married, hhead 30-39, hsize 6+	100.0	54.7	10.3	5.0	23.6	6.4
married, hhead 40-49, hsize< or =3	100.0	53.5	15.4	4.6	20.5	6.0
married, hhead 40-49, 3<hsize<6	100.0	60.8	13.5	4.7	16.9	4.1
married, hhead 40-49, hsize 6+	100.0	59.3	9.0	6.2	19.4	6.1
married, hhead 50+, hsize< or =3	100.0	71.7	6.7	5.1	13.0	3.5
married, hhead 50+, 3<hsize<6	100.0	67.7	8.0	6.4	14.7	3.3
married, hhead 50+, hsize 6+	100.0	68.7	7.0	6.0	13.7	4.6
Rural						
single/separated, hhsz=1	100.0	66.8	2.6	3.8	23.8	3.1
single w/ hhsz>1	100.0	73.2	2.3	2.6	21.0	1.0
separated, hhsz>1	100.0	64.6	1.4	6.1	26.7	1.2
married, hhead<30, hsize< or =3	100.0	57.4	2.1	3.4	34.6	2.5
married, hhead<30, 3<hsize<6	100.0	61.2	1.3	2.0	32.1	3.4
married, hhead<30, hsize 6+	100.0	58.2	0.7	2.5	35.6	3.0
married, hhead 30-39, hsize< or =3	100.0	63.2	1.1	3.3	31.4	1.1
married, hhead 30-39, 3<hsize<6	100.0	65.3	1.6	3.2	27.9	1.9
married, hhead 30-39, hsize 6+	100.0	64.3	0.6	3.1	29.6	2.4
married, hhead 40-49, hsize< or =3	100.0	68.5	3.0	2.6	23.3	2.5
married, hhead 40-49, 3<hsize<6	100.0	68.8	1.2	3.2	25.4	1.4
married, hhead 40-49, hsize 6+	100.0	66.2	0.7	3.7	27.4	2.0
married, hhead 50+, hsize< or =3	100.0	71.1	0.5	2.8	24.5	1.1
married, hhead 50+, 3<hsize<6	100.0	75.0	0.3	2.9	20.1	1.6
married, hhead 50+, hsize 6+	100.0	73.7	0.3	4.0	19.9	2.1

Appendix 6 (continued)

		1997 Tenure Status				
	Total	Own or owner-like possession of house and lot	Rent house/ room, incl. lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
MCR						
single/separated, hhsz=1	100.0	31.9	31.6	1.1	22.7	12.6
single w/hhsz>1	100.0	46.5	39.0	0.6	11.2	2.7
separated, hhsz>1	100.0	55.0	24.1	2.0	14.5	4.4
married, lthead<30, hsz< or =3	100.0	35.1	49.4	1.2	11.9	2.3
married, lthead<30, 3<hsz<6	100.0	36.1	36.2	0.6	20.2	7.0
married, lthead<30, hsz 6+	100.0	47.2	36.3	0.9	15.6	-
married, lthead 30-39, hsz< or =3	100.0	35.0	47.8	1.6	11.3	4.3
married, lthead 30-39, 3<hsz<6	100.0	42.1	30.0	2.5	20.4	5.0
married, lthead 30-39, hsz 6+	100.0	46.1	21.6	3.8	17.1	11.5
married, lthead 40-49, hsz< or =3	100.0	44.5	32.0	-	14.5	9.0
married, lthead 40-49, 3<hsz<6	100.0	53.1	25.4	3.8	12.2	5.5
married, lthead 40-49, hsz 6+	100.0	49.8	21.2	5.3	14.1	9.6
married, lthead 50+, hsz< or =3	100.0	66.0	18.0	3.4	6.9	5.7
married, lthead 50+, 3<hsz<6	100.0	56.3	22.3	6.7	9.3	5.4
married, lthead 50+, hsz 6+	100.0	60.1	17.2	5.8	8.3	8.6
Metro Cebu						
single/separated, hhsz=1	100.0	15.0	56.9	9.2	18.9	-
single w/hhsz>1	100.0	36.9	20.9	12.3	3.0	27.0
separated, hhsz>1	100.0	58.3	-	-	16.7	25.0
married, lthead<30, hsz< or =3	100.0	34.2	44.5	3.6	8.4	9.3
married, lthead<30, 3<hsz<6	100.0	23.8	15.9	5.6	38.0	16.8
married, lthead<30, hsz 6+	100.0	59.3	5.7	-	27.1	7.9
married, lthead 30-39, hsz< or =3	100.0	45.2	30.1	4.3	12.2	8.2
married, lthead 30-39, 3<hsz<6	100.0	42.3	11.0	8.1	19.2	19.4
married, lthead 30-39, hsz 6+	100.0	33.7	8.9	12.3	32.8	12.3
married, lthead 40-49, hsz< or =3	100.0	55.6	-	15.7	25.9	2.8
married, lthead 40-49, 3<hsz<6	100.0	44.5	8.0	9.1	29.6	8.7
married, lthead 40-49, hsz 6+	100.0	44.0	2.6	14.7	19.1	19.6
married, lthead 50+, hsz< or =3	100.0	46.4	-	18.7	23.7	11.2
married, lthead 50+, 3<hsz<6	100.0	56.5	1.8	16.9	10.6	14.2
married, lthead 50+, hsz 6+	100.0	44.8	9.9	13.1	18.3	13.8
Davao City						
single/separated, hhsz=1	100.0	15.4	46.2	-	38.5	-
single w/hhsz>1	100.0	53.6	17.1	-	29.3	-
separated, hhsz>1	100.0	67.0	-	27.1	5.9	-
married, lthead<30, hsz< or =3	100.0	17.0	28.3	9.4	45.3	-
married, lthead<30, 3<hsz<6	100.0	38.5	27.5	3.9	22.5	7.6
married, lthead<30, hsz 6+	100.0	100.0	-	-	-	-
married, lthead 30-39, hsz< or =3	100.0	55.9	35.3	-	8.8	-
married, lthead 30-39, 3<hsz<6	100.0	40.2	25.3	3.5	29.1	1.9
married, lthead 30-39, hsz 6+	100.0	28.0	11.2	11.8	48.9	-
married, lthead 40-49, hsz< or =3	100.0	66.0	19.4	-	14.6	-
married, lthead 40-49, 3<hsz<6	100.0	70.4	6.9	6.5	13.8	2.4
married, lthead 40-49, hsz 6+	100.0	42.8	8.4	9.6	37.8	1.5
married, lthead 50+, hsz< or =3	100.0	73.9	-	3.6	18.9	3.6
married, lthead 50+, 3<hsz<6	100.0	64.2	5.8	4.9	25.1	-
married, lthead 50+, hsz 6+	100.0	68.4	-	18.3	13.3	-

The Dynamics of Housing Demand in the Philippines

Appendix 7. Housing Improvement By Lifecycle, Wall Materials

WALL MATERIALS	1995				1997			
	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift
Philippines								
single/separated, hsize=1	100.0	34.2	57.9	7.9	100.0	58.4	36.4	5.2
single w/ hsize>1	100.0	54.0	44.6	1.5	100.0	76.3	21.6	2.1
separated, hsize>1	100.0	46.4	47.9	5.7	100.0	65.9	31.3	2.9
married, hhead<30, hsize< or =3	100.0	21.7	71.8	6.5	100.0	53.9	43.2	2.8
married, hhead<30, 3<hsize<6	100.0	23.1	71.4	5.6	100.0	47.3	49.9	2.7
married, hhead<30, hsize 6+	100.0	24.1	67.1	8.9	100.0	49.8	48.2	2.0
married, hhead 30-39, hsize< or =3	100.0	41.2	55.9	2.9	100.0	61.6	36.4	2.0
married, hhead 30-39, 3<hsize<6	100.0	37.4	57.9	4.7	100.0	62.0	35.7	2.3
married, hhead 30-39, hsize 6+	100.0	31.3	64.6	4.0	100.0	51.4	45.5	3.1
married, hhead 40-49, hsize< or =3	100.0	33.4	62.6	4.0	100.0	66.6	30.6	2.8
married, hhead 40-49, 3<hsize<6	100.0	41.9	54.7	3.5	100.0	68.6	29.4	2.0
married, hhead 40-49, hsize 6+	100.0	37.6	59.2	3.2	100.0	58.5	39.5	2.0
married, hhead 50+, hsize< or =3	100.0	40.3	55.2	4.5	100.0	61.3	37.1	1.6
married, hhead 50+, 3<hsize<6	100.0	44.0	53.0	3.0	100.0	68.6	29.9	1.5
married, hhead 50+, hsize 6+	100.0	46.5	51.0	2.5	100.0	69.3	29.0	1.7
Urban								
single/separated, hsize=1	100.0	51.2	45.5	3.3	100.0	76.5	19.1	4.4
single w/ hsize>1	100.0	62.2	36.3	1.4	100.0	85.0	12.4	2.6
separated, hsize>1	100.0	53.2	37.2	9.6	100.0	77.3	18.4	4.4
married, hhead<30, hsize< or =3	100.0	41.2	53.4	5.4	100.0	68.1	26.8	5.1
married, hhead<30, 3<hsize<6	100.0	35.5	58.1	6.5	100.0	65.3	29.5	5.2
married, hhead<30, hsize 6+	100.0	34.3	54.6	11.1	100.0	63.2	33.4	3.4
married, hhead 30-39, hsize< or =3	100.0	52.9	43.8	3.3	100.0	78.6	19.2	2.2
married, hhead 30-39, 3<hsize<6	100.0	51.5	43.5	5.0	100.0	74.8	21.9	3.3
married, hhead 30-39, hsize 6+	100.0	41.8	53.3	4.9	100.0	65.0	29.6	5.4
married, hhead 40-49, hsize< or =3	100.0	47.5	48.0	3.6	100.0	74.8	22.3	2.9
married, hhead 40-49, 3<hsize<6	100.0	56.3	40.6	3.1	100.0	80.3	17.1	2.6
married, hhead 40-49, hsize 6+	100.0	49.3	45.9	4.9	100.0	72.1	25.0	2.9
married, hhead 50+, hsize< or =3	100.0	54.4	40.7	4.8	100.0	77.6	20.3	2.1
married, hhead 50+, 3<hsize<6	100.0	61.0	35.2	3.8	100.0	78.2	19.7	2.1
married, hhead 50+, hsize 6+	100.0	56.9	39.8	3.2	100.0	79.8	17.9	2.3
Rural								
single/separated, hsize=1	100.0	24.5	65.0	10.5	100.0	34.7	59.1	6.2
single w/ hsize>1	100.0	45.2	53.3	1.5	100.0	60.7	38.1	1.2
separated, hsize>1	100.0	36.4	63.6	-	100.0	44.3	55.7	-
married, hhead<30, hsize< or =3	100.0	13.5	79.6	7.0	100.0	42.2	56.8	1.0
married, hhead<30, 3<hsize<6	100.0	17.4	77.5	5.1	100.0	33.2	66.1	0.7
married, hhead<30, hsize 6+	100.0	17.9	74.6	7.5	100.0	36.2	63.2	0.7
married, hhead 30-39, hsize< or =3	100.0	32.9	64.5	2.6	100.0	42.3	55.9	1.8
married, hhead 30-39, 3<hsize<6	100.0	27.0	68.5	4.5	100.0	49.1	49.5	1.3
married, hhead 30-39, hsize 6+	100.0	26.5	69.9	3.6	100.0	42.3	56.2	1.5
married, hhead 40-49, hsize< or =3	100.0	25.6	70.2	4.2	100.0	58.5	38.8	2.7
married, hhead 40-49, 3<hsize<6	100.0	31.0	65.2	3.8	100.0	55.6	43.1	1.3
married, hhead 40-49, hsize 6+	100.0	30.8	66.9	2.3	100.0	47.2	51.4	1.3
married, hhead 50+, hsize< or =3	100.0	34.9	60.6	4.4	100.0	51.0	47.8	1.2
married, hhead 50+, 3<hsize<6	100.0	34.0	63.4	2.6	100.0	60.1	38.9	1.0
married, hhead 50+, hsize 6+	100.0	38.2	59.9	1.9	100.0	59.2	39.8	1.1

Appendix 7 (continued)

	1993				1997			
	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift
NCR								
single/separated, hhsz=1	100.0	54.3	45.7	-	100.0	80.2	10.0	9.8
single w/hhsz>1	100.0	74.7	24.0	1.3	100.0	89.6	6.4	4.0
separated, hhsz>1	100.0	62.4	28.7	8.9	100.0	84.3	8.8	6.9
married, hhead<30, hsz< or =3	100.0	44.4	48.2	7.4	100.0	79.6	8.4	11.9
married, hhead<30, 3<hsz<6	100.0	44.0	47.6	8.4	100.0	80.4	9.2	10.4
married, hhead<30, hsz 6+	100.0	42.8	49.8	7.4	100.0	76.7	21.9	1.3
married, hhead 30-39, hsz< or =3	100.0	52.9	42.9	4.2	100.0	88.9	6.5	4.7
married, hhead 30-39, 3<hsz<6	100.0	59.8	33.2	7.0	100.0	84.0	9.7	6.2
married, hhead 30-39, hsz 6+	100.0	52.3	42.4	5.3	100.0	73.6	11.8	14.6
married, hhead 40-49, hsz< or =3	100.0	62.4	37.6	-	100.0	89.6	5.7	4.7
married, hhead 40-49, 3<hsz<6	100.0	57.4	37.6	5.0	100.0	90.5	5.8	3.7
married, hhead 40-49, hsz 6+	100.0	53.8	39.1	7.0	100.0	86.9	7.6	5.5
married, hhead 50+, hsz< or =3	100.0	72.6	24.0	3.4	100.0	90.1	4.8	5.1
married, hhead 50+, 3<hsz<6	100.0	72.2	25.0	2.8	100.0	86.9	8.1	5.0
married, hhead 50+, hsz 6+	100.0	60.8	34.4	4.9	100.0	90.5	4.4	5.1
Metro Cebu								
single/separated, hhsz=1	100.0	25.0	75.0	-	100.0	89.4	10.6	-
single w/hhsz>1	100.0	71.4	28.6	-	100.0	80.7	11.5	7.8
separated, hhsz>1	100.0	100.0	-	-	100.0	68.0	32.0	-
married, hhead<30, hsz< or =3	100.0	33.4	66.6	-	100.0	52.9	47.1	-
married, hhead<30, 3<hsz<6	100.0	33.3	66.7	-	100.0	51.4	42.0	6.5
married, hhead<30, hsz 6+	100.0	33.3	33.3	33.3	100.0	44.9	40.7	14.3
married, hhead 30-39, hsz< or =3	100.0	25.0	50.0	25.0	100.0	77.5	22.5	-
married, hhead 30-39, 3<hsz<6	100.0	55.6	44.4	-	100.0	63.9	31.0	5.1
married, hhead 30-39, hsz 6+	100.0	35.3	64.7	-	100.0	64.2	31.5	4.3
married, hhead 40-49, hsz< or =3	100.0	-	100.0	-	100.0	38.0	59.2	2.8
married, hhead 40-49, 3<hsz<6	100.0	55.5	33.3	11.1	100.0	65.8	32.2	2.0
married, hhead 40-49, hsz 6+	100.0	50.0	42.9	7.1	100.0	64.3	30.6	5.0
married, hhead 50+, hsz< or =3	100.0	-	80.0	20.0	100.0	69.6	25.0	5.4
married, hhead 50+, 3<hsz<6	100.0	50.0	32.1	17.9	100.0	76.5	20.7	2.8
married, hhead 50+, hsz 6+	100.0	70.0	30.0	-	100.0	68.8	28.3	2.9
Davao City								
single/separated, hhsz=1	100.0	100.0	-	-	100.0	100.0	-	-
single w/hhsz>1	100.0	32.4	67.6	-	100.0	79.5	10.3	10.3
separated, hhsz>1	100.0	73.1	26.9	-	100.0	93.6	-	6.4
married, hhead<30, hsz< or =3	100.0	43.6	56.4	-	100.0	81.1	9.4	9.4
married, hhead<30, 3<hsz<6	100.0	35.6	64.4	-	100.0	76.9	19.2	3.9
married, hhead<30, hsz 6+	100.0	50.0	16.7	33.3	100.0	26.3	73.7	-
married, hhead 30-39, hsz< or =3	100.0	50.0	50.0	-	100.0	91.2	8.8	-
married, hhead 30-39, 3<hsz<6	100.0	45.5	48.2	6.3	100.0	86.7	13.3	-
married, hhead 30-39, hsz 6+	100.0	39.7	38.8	21.5	100.0	90.4	6.2	3.4
married, hhead 40-49, hsz< or =3	100.0	16.7	66.7	16.7	100.0	75.7	24.3	-
married, hhead 40-49, 3<hsz<6	100.0	42.4	57.6	-	100.0	91.3	8.7	-
married, hhead 40-49, hsz 6+	100.0	49.0	51.0	-	100.0	76.3	20.8	2.9
married, hhead 50+, hsz< or =3	100.0	79.3	20.7	-	100.0	74.7	25.3	-
married, hhead 50+, 3<hsz<6	100.0	70.8	29.2	-	100.0	88.2	11.8	-
married, hhead 50+, hsz 6+	100.0	52.4	40.1	7.6	100.0	94.7	5.3	-

Appendix 8. Housing Improvement By Lifecycle, Toilet Facility

	Total	1993					Total	1997				
		Water-sealed	Closed-pit	Open-pit	Others (pail system, etc.)	None		Water-sealed	Closed-pit	Open-pit	Others (pail system, etc.)	None
TYPE OF TOILET FACILITY												
Philippines												
single/separated, hsize=1	100.0	50.9	8.7	17.0	3.2	20.2	100.0	60.2	9.6	11.8	3.7	14.7
single w/ hsize>1	100.0	60.8	14.9	11.1	2.5	10.7	100.0	75.2	9.2	5.9	3.9	5.8
separated, hsize>1	100.0	58.4	12.8	12.3	5.3	11.3	100.0	70.3	10.6	5.8	2.7	10.6
married, hhead<30, hsize< or =3	100.0	33.0	21.7	21.2	3.8	20.2	100.0	56.8	15.0	11.3	4.4	12.4
married, hhead<30, 3<hsize<6	100.0	40.5	17.0	17.0	4.4	21.1	100.0	50.8	14.3	12.5	4.6	17.8
married, hhead<30, hsize 6+	100.0	40.1	18.1	18.2	6.0	17.6	100.0	54.6	11.6	15.1	3.7	15.0
married, hhead 30-39, hsize< or =3	100.0	60.4	11.0	11.4	4.1	13.1	100.0	63.7	11.2	9.8	3.6	11.6
married, hhead 30-39, 3<hsize<6	100.0	53.2	17.6	14.1	3.8	11.3	100.0	64.7	10.7	10.0	4.2	10.4
married, hhead 30-39, hsize 6+	100.0	44.0	17.3	17.3	3.6	17.8	100.0	53.7	14.6	11.8	4.3	15.7
married, hhead 40-49, hsize< or =3	100.0	50.2	16.3	16.1	4.7	12.7	100.0	68.1	10.3	7.2	4.2	10.3
married, hhead 40-49, 3<hsize<6	100.0	56.6	16.2	11.6	3.6	12.1	100.0	70.5	11.0	8.0	3.5	7.1
married, hhead 40-49, hsize 6+	100.0	53.5	16.4	15.7	3.7	10.7	100.0	61.6	13.6	11.4	3.5	9.9
married, hhead 50+, hsize< or =3	100.0	48.6	17.9	15.8	2.6	15.1	100.0	62.8	12.0	8.9	3.1	13.2
married, hhead 50+, 3<hsize<6	100.0	58.3	15.2	12.1	3.3	11.0	100.0	71.1	11.9	7.5	2.8	6.8
married, hhead 50+, hsize 6+	100.0	60.3	16.9	12.2	3.2	7.3	100.0	71.3	10.1	8.8	3.3	6.5
Urban												
single/separated, hsize=1	100.0	83.7	9.0	0.6	1.7	5.0	100.0	76.2	6.2	5.7	3.1	8.7
single w/ hsize>1	100.0	77.4	10.9	4.8	2.7	4.2	100.0	84.5	8.0	2.1	3.3	2.1
separated, hsize>1	100.0	73.5	8.8	4.1	5.4	8.2	100.0	78.3	8.7	2.0	3.5	7.5
married, hhead<30, hsize< or =3	100.0	59.7	12.1	7.8	7.3	13.1	100.0	71.4	9.2	6.2	6.4	6.8
married, hhead<30, 3<hsize<6	100.0	59.4	14.1	7.7	5.2	13.5	100.0	67.5	11.6	4.9	5.8	10.1
married, hhead<30, hsize 6+	100.0	53.5	13.2	11.3	6.5	15.5	100.0	68.8	9.9	8.2	3.8	9.4
married, hhead 30-39, hsize< or =3	100.0	74.5	9.3	8.9	3.5	3.8	100.0	78.9	7.7	4.6	4.5	4.4
married, hhead 30-39, 3<hsize<6	100.0	71.1	12.1	6.6	4.5	5.7	100.0	76.4	7.8	4.4	4.6	6.7
married, hhead 30-39, hsize 6+	100.0	64.6	13.4	8.0	3.9	10.2	100.0	69.3	11.3	5.5	4.6	9.2
married, hhead 40-49, hsize< or =3	100.0	66.8	11.9	10.0	3.7	7.6	100.0	79.9	7.0	4.0	2.4	6.7
married, hhead 40-49, 3<hsize<6	100.0	75.7	11.4	4.1	3.7	5.1	100.0	81.3	8.0	3.7	3.3	3.7

Appendix 8 (continued)

•	1993						1997					
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system etc.)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system etc.)	None
married, hhead 40-49, hsize 6+	100.0	69.6	12.3	7.3	3.7	7.1	100.0	75.7	9.4	5.6	4.0	5.4
married, hhead 50+, hsize < or = 3	100.0	69.7	13.8	7.9	0.1	8.5	100.0	77.9	7.7	4.6	3.4	6.5
married, hhead 50+, 3<hsize<6	100.0	77.5	9.4	5.6	2.9	4.6	100.0	82.2	7.4	3.8	3.3	3.2
Married, hhead 50+, hsize 6+	100.0	76.2	11.0	5.2	3.7	3.8	100.0	81.0	6.9	4.9	3.2	4.0
Rural												
single/separated, hsize=1	100.0	32.3	8.6	26.3	4.1	28.8	100.0	39.2	14.0	19.7	4.5	22.6
single w/ hsize>1	100.0	43.2	19.0	17.9	2.4	17.6	100.0	58.7	11.2	12.8	5.0	12.3
separated, hsize>1	100.0	36.0	18.7	24.4	5.1	15.7	100.0	55.2	14.1	13.0	1.0	16.6
married, hhead<30, hsize < or = 3	100.0	21.8	25.8	26.9	2.3	23.2	100.0	44.7	19.9	15.6	2.8	17.1
married, hhead<30, 3<hsize<6	100.0	31.7	18.4	21.3	4.1	24.5	100.0	37.6	16.5	18.5	3.6	23.8
married, hhead<30, hsize 6+	100.0	32.0	21.0	22.4	5.6	18.9	100.0	40.1	13.3	22.1	3.6	20.8
married, hhead 30-39, hsize < or = 3	100.0	50.5	12.2	13.1	4.5	19.6	100.0	46.5	15.3	15.9	2.6	19.8
married, hhead 30-39, 3<hsize<6	100.0	39.9	21.7	19.6	3.3	15.5	100.0	53.1	13.5	15.6	3.8	14.0
married, hhead 30-39, hsize 6+	100.0	34.5	19.1	21.6	3.5	21.3	100.0	43.2	16.8	16.0	4.0	20.0
married, hhead 40-49, hsize < or = 3	100.0	41.0	18.8	19.5	5.2	15.5	100.0	56.4	13.5	10.4	5.9	13.7
married, hhead 40-49, 3<hsize<6	100.0	42.2	19.8	17.2	3.5	17.3	100.0	58.4	14.3	12.9	3.6	10.8
married, hhead 40-49, hsize 6+	100.0	44.2	18.8	20.5	3.7	12.9	100.0	49.9	17.2	16.2	3.2	13.5
married, hhead 50+, hsize < or = 3	100.0	40.6	19.4	18.8	3.5	17.6	100.0	53.2	14.8	11.7	2.9	17.5
married, hhead 50+, 3<hsize<6	100.0	47.0	18.7	16.0	3.6	14.8	100.0	61.3	15.8	10.8	2.3	9.9
married, hhead 50+, hsize 6+	100.0	47.7	21.6	17.8	2.9	10.0	100.0	61.8	13.2	12.5	3.4	9.1
NCR												
single/separated, hsize=1	100.0	91.4	8.6	-	-	-	100.0	85.6	1.7	2.8	3.5	6.4
single w/ hsize>1	100.0	83.4	10.9	1.4	4.3	-	100.0	86.4	8.1	1.1	4.4	-
separated, hsize>1	100.0	74.6	9.7	4.3	9.2	2.2	100.0	81.7	11.0	0.9	3.3	3.1
married, hhead<30, hsize < or = 3	100.0	71.6	9.9	5.3	10.5	2.7	100.0	80.9	6.7	0.7	9.2	2.6
married, hhead<30, 3<hsize<6	100.0	76.5	4.4	3.0	8.8	7.4	100.0	77.5	10.8	1.1	8.2	2.4
married, hhead<30, hsize 6+	100.0	67.2	9.7	10.3	4.8	8.0	100.0	82.4	10.0	3.6	4.0	-
married, hhead 30-39, hsize < or = 3	100.0	80.6	8.3	4.4	6.6	-	100.0	83.6	8.3	0.9	5.9	1.3

Appendix 8 (continued)

	Total	1993					Total	1997				
		Water-sealed	Closed-pit	Open-pit	Others (pail system etc.)	None		Water-sealed	Closed-pit	Open-pit	Others (pail system etc.)	None
married, hhead 30-39, 3<hsize<6	100.0	75.5	9.5	5.1	7.0	2.9	100.0	83.3	6.4	1.4	6.2	2.7
married, hhead 30-39, hsize 6+	100.0	78.2	10.4	2.5	5.0	3.8	100.0	79.6	9.5	1.6	5.3	3.9
married, hhead 40-49, hsize< or =3	100.0	69.5	7.6	7.8	3.5	11.7	100.0	86.1	7.8	-	3.7	2.4
married, hhead 40-49, 3<hsize<6	100.0	82.2	7.0	2.2	6.8	1.8	100.0	84.1	8.8	1.1	4.6	1.4
married, hhead 40-49, hsize 6+	100.0	80.3	7.4	1.2	5.3	5.8	100.0	87.7	6.1	2.4	3.1	0.8
married, hhead 50+, hsize< or =3	100.0	88.8	6.7	1.4	-	3.1	100.0	88.2	6.8	-	3.5	1.5
married, hhead 50+, 3<hsize<6	100.0	85.0	8.0	0.9	3.9	2.2	100.0	89.7	4.7	1.0	4.4	0.1
married, hhead 50+, hsize 6+	100.0	82.2	7.4	3.6	5.8	1.1	100.0	87.3	4.6	2.3	4.6	1.2
Metro Cebu												
single/separated, hsize=1	100.0	100.0	-	-	-	-	100.0	76.7	11.3	-	-	12.1
single w/ hsize>1	100.0	85.7	14.3	-	-	-	100.0	56.1	22.4	3.0	-	18.5
separated, hsize>1	100.0	100.0	-	-	-	-	100.0	60.2	-	7.7	3.1	28.9
married, hhead<30, hsize< or =3	100.0	33.3	-	33.3	-	33.3	100.0	49.5	7.3	17.9	6.7	18.5
married, hhead<30, 3<hsize<6	100.0	66.7	11.1	-	-	22.2	100.0	63.5	13.3	-	5.1	18.1
married, hhead<30, hsize 6+	100.0	33.3	-	33.3	33.3	-	100.0	50.5	-	8.6	-	40.8
married, hhead 30-39, hsize< or =3	100.0	50.0	-	-	-	50.0	100.0	92.5	-	-	-	7.5
married, hhead 30-39, 3<hsize<6	100.0	72.2	-	5.6	-	22.2	100.0	72.0	8.8	4.4	9.6	5.1
married, hhead 30-39, hsize 6+	100.0	70.6	5.9	-	-	23.5	100.0	66.8	10.3	-	8.8	14.0
married, hhead 40-49, hsize< or =3	100.0	100.0	-	-	-	-	100.0	43.7	14.9	16.3	3.9	21.2
married, hhead 40-49, 3<hsize<6	100.0	66.7	-	11.1	11.1	11.1	100.0	78.5	7.5	5.8	3.3	4.9
married, hhead 40-49, hsize 6+	100.0	82.1	7.1	7.1	-	3.6	100.0	64.2	11.6	7.2	1.3	15.6
married, hhead 50+, hsize< or =3	100.0	20.0	-	40.0	-	40.0	100.0	59.5	3.5	18.1	1.5	17.5
married, hhead 50+, 3<hsize<6	100.0	71.4	7.1	14.3	-	7.1	100.0	73.3	10.8	3.1	8.6	4.2
married, hhead 50+, hsize 6+	100.0	90.0	-	3.3	-	6.7	100.0	73.9	3.4	9.2	2.4	11.2
Davao City												
single/separated, hsize=1	100.0	100.0	-	-	-	-	100.0	100.0	-	-	-	-
single w/ hsize>1	100.0	45.1	32.4	22.5	-	-	100.0	69.2	10.3	20.5	-	-
separated, hsize>1	100.0	86.5	-	-	13.5	-	100.0	83.5	-	10.6	-	5.9

Appendix 8 (continued)

	1991						1997					
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc.)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc.)	None
married, hhead<30, hsize< or =3	100.0	81.8	-	18.2	-	-	100.0	71.7	-	9.4	9.4	9.4
married, hhead<30, 3<hsize<6	100.0	71.1	-	17.0	11.9	-	100.0	69.9	3.9	14.7	3.9	7.6
married, hhead<30, hsize 6+	100.0	66.7	-	16.7	16.7	-	100.0	100.0	-	-	-	-
married, hhead 30-39, hsize< or =3	100.0	50.0	-	50.0	-	-	100.0	82.4	-	8.8	-	8.8
married, hhead 30-39, 3<hsize<6	100.0	70.7	7.7	18.5	3.2	-	100.0	77.0	3.5	9.8	1.8	7.9
married, hhead 30-39, hsize 6+	100.0	50.7	8.9	35.1	5.2	-	100.0	78.9	-	5.6	3.1	12.4
married, hhead 40-49, hsize< or =3	100.0	66.7	-	16.7	16.7	-	100.0	85.4	-	-	-	14.6
married, hhead 40-49, 3<hsize<6	100.0	63.6	21.2	15.2	-	-	100.0	88.4	-	8.3	-	3.3
married, hhead 40-49, hsize 6+	100.0	55.7	12.7	25.2	-	6.4	100.0	68.2	8.1	5.5	2.9	15.3
married, hhead 50+, hsize< or =3	100.0	67.0	12.2	20.7	-	-	100.0	68.2	6.4	16.4	-	8.9
married, hhead 50+, 3<hsize<6	100.0	67.3	9.7	22.9	-	-	100.0	68.0	-	25.1	-	6.9
married, hhead 50+, hsize 6+	100.0	72.9	8.7	15.9	2.5	-	100.0	91.9	3.2	-	-	4.9

The Dynamics of Housing Demand in the Philippines

Appendix 9. Housing Improvement By Lifecycle, Source of Water Supply

1966									
	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dug-well	Spring, river stream, etc.	Rain	Peddler
Philippines									
single/separated, hsize=1	100.0	18.7	20.1	11.9	17.2	21.1	8.8	0.8	1.4
single w/ hsize>1	100.0	30.7	16.6	15.6	14.4	13.0	6.0	0.8	2.9
separated, hsize>1	100.0	31.7	14.3	17.7	18.0	9.2	6.4	-	2.6
married, hhead<30, hsize< or =3	100.0	10.0	17.1	8.8	23.1	23.1	14.6	1.3	2.0
married, hhead<30, 3<hsize<6	100.0	12.8	18.0	11.6	23.2	20.5	11.0	0.9	2.0
married, hhead<30, hsize 6+	100.0	18.0	21.0	7.9	23.6	14.4	10.4	1.0	3.8
married, hhead 30-39, hsize< or =3	100.0	21.6	15.8	14.2	18.6	16.7	8.9	2.2	2.0
married, hhead 30-39, 3<hsize<6	100.0	20.6	18.7	14.9	17.3	16.3	8.0	1.0	3.1
married, hhead 30-39, hsize 6+	100.0	13.5	17.7	16.1	18.6	20.2	11.0	0.9	2.1
married, hhead 40-49, hsize< or =3	100.0	16.7	15.5	15.0	16.5	22.4	8.4	3.1	2.5
married, hhead 40-49, 3<hsize<6	100.0	23.2	17.8	16.5	14.5	15.6	9.3	1.5	1.7
married, hhead 40-49, hsize 6+	100.0	17.8	18.5	17.4	14.7	18.4	9.6	1.2	2.4
married, hhead 50+, hsize< or =3	100.0	14.0	18.7	19.4	15.9	18.6	10.9	1.3	1.2
married, hhead 50+, 3<hsize<6	100.0	20.4	14.9	20.5	15.1	16.8	8.9	1.7	1.6
married, hhead 50+, hsize 6+	100.0	24.0	16.2	22.0	13.2	14.3	7.8	0.8	1.8
Urban									
single/separated, hsize=1	100.0	38.7	25.5	13.3	7.8	8.9	1.9	-	3.9
single w/ hsize>1	100.0	53.6	14.8	11.0	11.0	3.9	0.5	0.3	4.9
separated, hsize>1	100.0	47.5	13.7	12.2	18.6	4.7	-	-	3.3
married, hhead<30, hsize< or =3	100.0	29.1	32.3	8.9	15.1	6.1	2.8	2.2	3.5
married, hhead<30, 3<hsize<6	100.0	32.3	25.5	6.8	20.1	8.7	0.9	-	5.6
married, hhead<30, hsize 6+	100.0	34.9	30.6	3.8	16.6	4.6	1.7	-	7.9
married, hhead 30-39, hsize< or =3	100.0	37.9	15.9	20.0	12.6	6.0	4.6	-	3.1
married, hhead 30-39, 3<hsize<6	100.0	39.3	21.6	11.8	13.6	5.8	1.2	0.2	6.5
married, hhead 30-39, hsize 6+	100.0	30.6	24.8	14.4	14.3	8.1	2.5	0.3	4.9
married, hhead 40-49, hsize< or =3	100.0	39.0	19.2	15.0	12.7	4.8	2.6	1.0	5.7
married, hhead 40-49, 3<hsize<6	100.0	43.6	20.6	12.2	11.8	6.9	1.7	0.4	2.8
married, hhead 40-49, hsize 6+	100.0	35.8	23.1	13.2	12.8	7.4	1.8	0.3	5.6
married, hhead 50+, hsize< or =3	100.0	35.2	21.3	19.3	12.6	7.7	1.3	0.3	2.3
married, hhead 50+, 3<hsize<6	100.0	44.1	15.2	16.0	11.8	6.9	1.3	0.7	4.0
married, hhead 50+, hsize 6+	100.0	45.1	17.1	17.3	9.8	5.3	1.2	0.4	3.7
Rural									
single/separated, hsize=1	100.0	7.3	17.0	11.1	22.5	28.0	12.7	1.3	-
single w/ hsize>1	100.0	6.3	18.4	20.6	18.1	22.6	11.8	1.4	0.7
separated, hsize>1	100.0	8.5	15.1	25.9	17.1	15.9	15.8	-	1.7
married, hhead<30, hsize< or =3	100.0	1.9	10.8	8.8	26.5	30.2	19.6	0.9	1.4
married, hhead<30, 3<hsize<6	100.0	3.9	14.5	13.8	24.6	25.9	15.7	1.3	0.4
married, hhead<30, hsize 6+	100.0	7.9	15.2	10.4	27.8	20.2	15.5	1.5	1.4
married, hhead 30-39, hsize< or =3	100.0	10.1	15.7	10.2	22.8	24.2	12.1	3.7	1.3
married, hhead 30-39, 3<hsize<6	100.0	6.8	16.5	17.2	20.0	24.1	13.1	1.6	0.6
married, hhead 30-39, hsize 6+	100.0	5.5	14.4	16.9	20.6	25.7	15.0	1.2	0.8
married, hhead 40-49, hsize< or =3	100.0	4.2	13.4	15.1	18.6	32.2	11.6	4.2	0.7
married, hhead 40-49, 3<hsize<6	100.0	7.9	15.6	19.7	16.5	22.1	15.0	2.3	0.8
married, hhead 40-49, hsize 6+	100.0	7.4	15.8	19.8	15.8	24.8	14.0	1.7	0.6
married, hhead 50+, hsize< or =3	100.0	5.9	17.7	19.5	17.1	22.8	14.5	1.7	0.8
married, hhead 50+, 3<hsize<6	100.0	6.5	14.8	23.2	17.1	22.5	13.4	2.2	0.2
married, hhead 50+, hsize 6+	100.0	7.1	15.4	25.6	15.8	21.4	13.1	1.2	0.3

Appendix 9 (continued)

		Own use, faucet community water system	Shared, faucet, community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dug- well	Spring, river stream, etc.	Rain	Peddler
1985									
NCR									
single/separated, hhsz=1	100.0	64.6	25.7	-	-	-	-	-	9.7
single w/ hhsz>1	100.0	65.3	11.6	5.4	4.4	2.8	-	-	10.5
separated, hhsz>1	100.0	71.4	14.0	2.7	6.9	-	-	-	5.1
married, hhead<30, hsize< or =3	100.0	47.4	37.1	2.4	5.2	-	-	-	7.9
married, hhead<30, 3<hsize<6	100.0	48.6	29.3	-	8.7	4.0	-	-	9.4
married, hhead<30, hsize 6+	100.0	46.8	35.8	-	10.1	-	-	-	7.4
married, hhead 30-39, hsize< or =3	100.0	57.1	16.9	8.7	6.0	4.2	-	-	7.0
married, hhead 30-39, 3<hsize<6	100.0	53.4	22.9	4.0	5.4	2.1	-	-	12.2
married, hhead 30-39, hsize 6+	100.0	45.8	31.2	3.4	6.3	4.0	-	-	9.4
married, hhead 40-49, hsize< or =3	100.0	67.9	19.0	4.9	-	-	-	-	8.2
married, hhead 40-49, 3<hsize<6	100.0	60.9	23.0	1.8	6.9	2.5	-	-	5.0
married, hhead 40-49, hsize 6+	100.0	51.9	23.4	5.3	4.7	3.2	-	-	11.5
married, hhead 50+, hsize< or =3	100.0	50.9	21.6	11.9	4.7	1.8	-	-	9.1
married, hhead 50+, 3<hsize<6	100.0	62.5	12.4	6.7	6.2	4.2	-	-	8.0
married, hhead 50+, hsize 6+	100.0	61.7	19.0	6.5	3.0	1.7	-	-	8.1
Metro Cebu									
single/separated, hhsz=1	100.0	25.0	-	25.0	25.0	25.0	-	-	-
single w/ hhsz>1	100.0	57.1	28.6	-	14.3	-	-	-	-
separated, hhsz>1	100.0	50.0	-	-	50.0	-	-	-	-
married, hhead<30, hsize< or =3	100.0	-	100.0	-	-	-	-	-	-
married, hhead<30, 3<hsize<6	100.0	22.2	33.3	-	11.1	11.1	11.1	-	11.1
married, hhead<30, hsize 6+	100.0	-	66.6	33.4	-	-	-	-	-
married, hhead 30-39, hsize< or =3	100.0	-	25.0	25.0	25.0	-	25.0	-	-
married, hhead 30-39, 3<hsize<6	100.0	33.3	27.8	11.1	22.2	-	-	-	5.6
married, hhead 30-39, hsize 6+	100.0	41.2	35.3	-	5.9	5.9	5.9	-	5.9
married, hhead 40-49, hsize< or =3	100.0	50.0	50.0	-	-	-	-	-	-
married, hhead 40-49, 3<hsize<6	100.0	66.7	22.2	-	11.1	-	-	-	-
married, hhead 40-49, hsize 6+	100.0	28.6	39.3	10.7	14.3	-	-	-	7.1
married, hhead 50+, hsize< or =3	100.0	-	80.0	-	20.0	-	-	-	-
married, hhead 50+, 3<hsize<6	100.0	28.6	32.1	14.3	17.9	-	3.6	-	3.6
married, hhead 50+, hsize 6+	100.0	60.0	13.3	20.0	3.3	3.3	-	-	-
Davao City									
single/separated, hhsz=1	100.0	50.0	20.5	-	-	29.5	-	-	-
single w/ hhsz>1	100.0	22.5	-	-	-	22.5	54.9	-	-
separated, hhsz>1	100.0	59.7	13.4	-	13.4	-	-	-	13.4
married, hhead<30, hsize< or =3	100.0	56.4	25.4	-	-	-	18.2	-	-
married, hhead<30, 3<hsize<6	100.0	35.5	23.7	-	-	28.9	-	-	11.9
married, hhead<30, hsize 6+	100.0	33.3	50.0	-	-	-	-	-	16.7
married, hhead 30-39, hsize< or =3	100.0	50.0	-	-	-	50.0	-	-	-
married, hhead 30-39, 3<hsize<6	100.0	44.1	9.4	4.5	12.2	6.3	3.2	4.5	15.8
married, hhead 30-39, hsize 6+	100.0	30.8	7.3	-	10.5	3.7	19.4	19.4	8.9
married, hhead 40-49, hsize< or =3	100.0	50.0	33.3	-	-	-	-	16.7	-
married, hhead 40-49, 3<hsize<6	100.0	21.2	21.2	21.2	-	10.6	-	15.2	10.6
married, hhead 40-49, hsize 6+	100.0	40.0	14.2	7.8	17.6	6.4	7.5	3.8	2.6
married, hhead 50+, hsize< or =3	100.0	54.8	8.5	-	-	-	24.5	12.2	-
married, hhead 50+, 3<hsize<6	100.0	43.9	4.0	-	9.7	5.7	17.2	15.5	4.0
married, hhead 50+, hsize 6+	100.0	39.0	20.2	6.2	5.1	8.7	3.6	9.8	7.6

The Dynamics of Housing Demand in the Philippines

Appendix 9 (continued)

1997									
	Total	Own use, faucet community water system	Shared, faucet, community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dug- well	Spring, river stream, etc.	Rain	Peddler
Philippines									
single/separated, hhsz=1	100.0	27.6	17.9	10.8	21.8	12.8	4.8	0.8	3.5
single w/ hhsz>1	100.0	34.8	17.9	16.1	12.1	7.8	6.8	0.9	3.6
separated, hhsz>1	100.0	33.0	20.0	12.1	21.0	7.9	2.2	0.4	3.5
married, hhead<30, hsize< or =3	100.0	15.1	23.8	12.0	23.0	10.5	10.2	0.4	5.1
married, hhead<30, 3<hsize<6	100.0	14.1	22.8	10.0	25.9	13.2	9.7	0.2	4.1
married, hhead<30, hsize 6+	100.0	19.8	23.7	9.2	21.6	10.8	10.4	-	4.4
married, hhead 30-39, hsize< or =3	100.0	22.1	23.8	12.9	18.9	9.3	10.1	0.1	2.7
married, hhead 30-39, 3<hsize<6	100.0	21.1	22.6	13.6	21.0	10.4	7.4	0.4	3.5
married, hhead 30-39, hsize 6+	100.0	15.0	22.0	12.2	22.5	14.0	11.0	0.2	3.1
married, hhead 40-49, hsize< or =3	100.0	26.1	19.5	14.5	18.1	10.3	9.0	0.4	2.1
married, hhead 40-49, 3<hsize<6	100.0	28.0	18.6	17.2	16.8	10.0	6.4	0.3	2.7
married, hhead 40-49, hsize 6+	100.0	19.6	21.1	14.2	19.0	13.6	9.0	0.3	3.2
married, hhead 50+, hsize< or =3	100.0	18.7	19.9	16.5	17.2	14.0	10.4	0.8	2.4
married, hhead 50+, 3<hsize<6	100.0	24.0	18.8	19.8	16.2	11.1	7.4	0.4	2.3
married, hhead 50+, hsize 6+	100.0	24.3	16.7	21.0	15.8	11.2	8.3	0.2	2.4
Urban									
single/separated, hhsz=1	100.0	40.5	19.1	10.5	16.7	5.8	2.5	-	5.0
single w/ hhsz>1	100.0	48.6	17.8	14.0	9.9	3.1	1.4	-	5.1
separated, hhsz>1	100.0	45.8	19.3	10.1	14.0	4.8	0.8	0.1	5.1
married, hhead<30, hsize< or =3	100.0	28.3	29.3	8.0	17.8	4.7	1.4	0.2	10.1
married, hhead<30, 3<hsize<6	100.0	26.7	28.0	9.0	19.8	5.5	2.7	0.1	8.1
married, hhead<30, hsize 6+	100.0	32.1	28.8	8.7	15.8	5.8	2.7	-	6.0
married, hhead 30-39, hsize< or =3	100.0	36.2	28.9	9.6	13.8	4.7	2.4	0.2	4.2
married, hhead 30-39, 3<hsize<6	100.0	35.5	23.5	11.2	16.2	5.4	2.2	0.1	5.9
married, hhead 30-39, hsize 6+	100.0	29.4	25.5	9.6	18.6	7.6	2.8	0.1	6.4
married, hhead 40-49, hsize< or =3	100.0	42.5	20.3	11.4	13.5	5.2	3.4	0.3	3.4
married, hhead 40-49, 3<hsize<6	100.0	45.3	18.4	13.3	12.8	4.1	1.4	0.1	4.5
married, hhead 40-49, hsize 6+	100.0	34.8	22.0	12.4	15.6	6.9	2.5	0.1	5.8
married, hhead 50+, hsize< or =3	100.0	37.7	19.0	16.5	12.5	6.5	2.7	0.2	5.0
married, hhead 50+, 3<hsize<6	100.0	41.4	16.8	17.4	13.0	5.3	1.7	0.1	4.3
married, hhead 50+, hsize 6+	100.0	40.4	16.2	17.6	13.9	5.4	2.2	0.1	4.2
Rural									
single/separated, hhsz=1	100.0	10.7	16.4	11.2	28.5	21.9	7.8	1.8	1.6
single w/ hhsz>1	100.0	10.1	18.0	19.9	16.1	16.2	16.3	2.6	0.9
separated, hhsz>1	100.0	8.7	21.1	15.8	34.2	13.8	4.9	1.1	0.4
married, hhead<30, hsize< or =3	100.0	4.1	19.2	15.3	27.3	15.3	17.5	0.5	0.8
married, hhead<30, 3<hsize<6	100.0	4.2	18.7	10.8	30.6	19.2	15.2	0.3	0.9
married, hhead<30, hsize 6+	100.0	7.4	18.6	9.6	27.5	15.8	18.3	-	2.8
married, hhead 30-39, hsize< or =3	100.0	6.0	18.1	16.6	24.8	14.5	18.9	-	1.0
married, hhead 30-39, 3<hsize<6	100.0	6.7	21.7	16.1	25.8	15.4	12.5	0.7	1.1
married, hhead 30-39, hsize 6+	100.0	5.2	19.6	14.0	25.2	18.4	16.5	0.3	0.9
married, hhead 40-49, hsize< or =3	100.0	10.0	18.8	17.5	22.6	15.3	14.4	0.5	0.9
married, hhead 40-49, 3<hsize<6	100.0	8.6	18.8	21.5	21.2	16.6	12.0	0.6	0.7
married, hhead 40-49, hsize 6+	100.0	7.0	20.3	15.8	21.8	19.2	14.4	0.4	1.1
married, hhead 50+, hsize< or =3	100.0	6.8	20.5	16.5	20.2	18.7	15.3	1.2	0.7
married, hhead 50+, 3<hsize<6	100.0	8.6	20.6	22.0	19.1	16.1	12.5	0.6	0.6
married, hhead 50+, hsize 6+	100.0	8.5	17.2	24.3	17.7	16.9	14.3	0.4	0.7

Appendix 9 (continued)

		1997						
	Total	Own use, faucet community water system	Shared, faucet, community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dug- well	Spring, river, stream, etc.	Rain Peddler
NCR								
single/separated, hhsz=1	100.0	51.5	18.5	3.4	14.0	2.1	-	10.4
single w/hhsz>1	100.0	58.3	18.9	7.4	6.8	0.7	-	8.0
separated, hhsz>1	100.0	52.2	24.3	4.4	8.3	3.2	-	7.6
married, hhead<30, hsize< or=3	100.0	40.1	31.4	1.6	11.4	-	-	15.4
married, hhead<30, 3<hsize<6	100.0	36.0	30.9	4.3	11.7	2.1	-	14.9
married, hhead<30, hsize 6+	100.0	49.1	32.1	2.8	4.4	-	-	11.6
married, hhead 30-39, hsize< or=3	100.0	42.3	33.0	4.4	9.9	1.0	-	9.4
married, hhead 30-39, 3<hsize<6	100.0	44.6	27.0	5.9	9.9	1.5	-	11.1
married, hhead 30-39, hsize 6+	100.0	34.8	32.4	3.0	12.0	3.6	-	14.1
married, hhead 40-49, hsize< or=3	100.0	61.3	18.0	5.6	7.4	2.4	-	5.2
married, hhead 40-49, 3<hsize<6	100.0	55.9	20.4	5.4	7.6	1.8	-	8.8
married, hhead 40-49, hsize 6+	100.0	44.9	25.1	4.2	9.0	3.9	-	13.0
married, hhead 50+, hsize< or=3	100.0	54.3	22.0	6.6	5.5	3.1	-	8.6
married, hhead 50+, 3<hsize<6	100.0	55.7	16.9	8.9	9.0	0.5	-	9.0
married, hhead 50+, hsize 6+	100.0	57.4	16.6	8.6	6.9	1.5	-	9.0
Metro Cebu								
single/separated, hhsz=1	100.0	61.7	-	-	30.7	-	7.7	-
single w/hhsz>1	100.0	47.2	23.7	3.0	5.5	13.0	-	7.8
separated, hhsz>1	100.0	48.3	23.5	8.1	3.1	6.1	-	10.8
married, hhead<30, hsize< or=3	100.0	10.4	21.9	3.9	12.5	19.2	7.3	24.8
married, hhead<30, 3<hsize<6	100.0	28.4	21.2	6.8	17.0	8.7	-	17.8
married, hhead<30, hsize 6+	100.0	15.0	7.9	10.6	46.5	5.7	-	14.3
married, hhead 30-39, hsize< or=3	100.0	23.7	19.4	14.4	15.7	11.2	7.5	8.2
married, hhead 30-39, 3<hsize<6	100.0	33.5	17.3	8.6	12.1	9.5	1.6	17.4
married, hhead 30-39, hsize 6+	100.0	29.5	30.1	2.6	23.2	8.4	1.7	4.6
married, hhead 40-49, hsize< or=3	100.0	11.0	14.9	2.8	17.1	14.3	31.8	8.1
married, hhead 40-49, 3<hsize<6	100.0	27.1	22.5	11.7	13.6	10.1	4.3	10.7
married, hhead 40-49, hsize 6+	100.0	23.3	18.9	8.7	22.5	12.1	4.3	10.3
married, hhead 50+, hsize< or=3	100.0	16.7	12.5	23.8	8.2	12.2	16.8	9.7
married, hhead 50+, 3<hsize<6	100.0	30.8	19.3	12.6	14.6	13.3	3.9	5.5
married, hhead 50+, hsize 6+	100.0	23.7	24.7	15.4	15.5	10.5	1.6	8.5
Davao City								
single/separated, hhsz=1	100.0	84.6	-	15.4	-	-	-	-
single w/hhsz>1	100.0	46.4	11.4	-	16.0	-	10.3	5.7
separated, hhsz>1	100.0	55.9	10.6	-	16.5	6.4	-	10.6
married, hhead<30, hsize< or=3	100.0	-	54.7	-	17.0	-	-	28.3
married, hhead<30, 3<hsize<6	100.0	43.5	34.1	-	11.5	-	7.0	3.9
married, hhead<30, hsize 6+	100.0	100.0	-	-	-	-	-	-
married, hhead 30-39, hsize< or=3	100.0	55.9	44.1	-	-	-	-	-
married, hhead 30-39, 3<hsize<6	100.0	52.2	29.3	-	8.4	3.5	1.8	1.8
married, hhead 30-39, hsize 6+	100.0	38.8	30.1	-	28.0	-	-	3.1
married, hhead 40-49, hsize< or=3	100.0	48.6	19.4	-	-	17.4	-	14.6
married, hhead 40-49, 3<hsize<6	100.0	68.1	12.0	-	6.5	1.8	3.3	6.5
married, hhead 40-49, hsize 6+	100.0	48.9	17.0	5.2	17.6	2.9	-	2.6
married, hhead 50+, hsize< or=3	100.0	37.6	14.3	3.6	19.3	-	12.8	12.5
married, hhead 50+, 3<hsize<6	100.0	35.5	21.7	-	8.8	2.5	13.3	13.3
married, hhead 50+, hsize 6+	100.0	46.7	6.3	-	21.1	7.1	13.0	3.2

Appendix 10. Estimated Parameters^a of Housing Demand Functions

	Philippines		Urban		Rural		Metro Manila		Metro Cebu		Davao City ^d	
	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters
Constant	-6.512 (0.078)	-5.732 (0.271)	-5.806 (0.087)	-5.601 (0.291)	-7.164 (0.156)	-4.373 (1.167)	-3.306 (0.201)	-4.350 (0.408)	-4.909 (0.476)	-3.402 (1.272)	-3.710 (0.628)	-1.120 (2.045)
Income	1.296 (0.008)	1.171 (0.024)	1.260 (0.008)	1.186 (0.025)	1.338 (0.014)	0.984 (0.108)	1.178 (0.017)	1.231 (0.035)	1.323 (0.043)	1.170 (0.119)	1.192 (0.058)	0.904 (0.188)
Size	-0.505 (0.011)	-0.346 (0.030)	-0.485 (0.013)	-0.342 (0.031)	-0.530 (0.019)	-0.414 (0.148)	-0.374 (0.027)	-0.436 (0.044)	-0.481 (0.070)	-0.539 (0.129)	-0.417 (0.101)	-0.258 (0.187)
Housing Price ^b	0.293 (0.011)	0.308 (0.032)	0.282 (0.011)	0.292 (0.033)	0.344 (0.025)	0.462 (0.123)						
Price Elasticity ^c	-0.267	-0.229	-0.296	-0.270	-0.141	0.154						
R ²	0.719	0.595	0.707	0.572	0.553	0.482	0.702	0.533	0.713	0.589	0.658	0.327
Adjusted R ²	0.718	0.594	0.707	0.571	0.553	0.471	0.702	0.532	0.712	0.577	0.655	0.299

^a All parameters significant at $\alpha = 0.01$.

^b Price data based on computed hedonic price by type of housing in each city.

^c Price elasticity is obtained by untangling the price of land from structure using the following relationship:

$E_p = b/K_L - 1$ where b = parameter for land

K_S = share of structure housing: 0.60

Appendix 11. Percentage Distribution of Household Expenditure

Income Class	FOOD	ALBEV & TBCCO	FUEL	TRCOM	HOPER & PRCRE	CLOTH	EDUC	MEDIC	HOUSE	OTHERS
Philippines										
under 10,000	65.6	2.0	7.7	1.7	4.9	1.7	0.2	1.3	8.0	7.0
10,000-19,999	65.3	2.9	6.3	2.2	4.6	2.2	0.5	1.4	7.5	6.9
20,000-29,999	64.3	3.3	6.1	2.4	4.8	2.6	1.0	1.4	7.0	7.2
30,000-39,999	62.4	3.6	5.8	2.5	5.1	3.0	1.2	1.6	7.1	7.6
40,000-49,999	61.2	3.6	5.6	2.8	5.1	3.3	1.4	1.6	7.5	8.0
50,000-59,999	58.8	3.3	5.4	3.0	5.2	3.3	2.0	1.8	8.4	8.6
60,000-79,999	56.1	3.4	5.7	3.4	5.3	3.4	2.4	1.7	9.8	8.8
80,000-99,999	53.3	3.0	5.7	3.9	5.4	3.5	2.7	1.8	10.9	9.7
100,000-149,999	48.9	2.5	5.7	4.5	5.4	3.6	3.5	2.0	12.3	11.6
150,000-249,999	43.3	1.9	5.4	5.3	5.6	3.5	4.4	2.4	14.0	14.1
250,000-499,999	36.0	1.4	4.9	7.0	6.0	3.5	5.3	2.4	15.7	17.6
500,000 & over	21.9	0.7	4.4	10.0	6.2	2.6	4.8	2.7	25.3	21.4
Urban										
under 10,000	68.5	2.0	7.4	1.1	4.8	1.0	0.2	0.5	9.5	5.0
10,000-19,999	63.2	2.3	6.8	2.4	4.9	2.4	0.7	2.0	9.2	6.2
20,000-29,999	62.5	3.0	6.7	2.4	5.2	2.5	1.1	1.6	8.7	6.2
30,000-39,999	61.5	3.5	6.3	2.6	5.2	2.8	1.3	1.7	9.2	6.1
40,000-49,999	60.5	3.4	6.0	3.0	5.3	3.1	1.4	1.6	9.2	6.5
50,000-59,999	58.5	3.1	5.7	3.1	5.4	3.1	1.8	1.8	10.2	7.4
60,000-79,999	55.9	3.2	5.9	3.5	5.4	3.2	2.3	1.6	11.0	7.9
80,000-99,999	53.3	3.0	5.9	3.9	5.5	3.3	2.7	1.9	11.2	9.3
100,000-149,999	48.8	2.4	5.9	4.5	5.5	3.4	3.7	2.0	12.6	11.1
150,000-249,999	42.3	1.9	5.4	5.3	5.9	3.5	4.8	2.4	13.4	15.1
250,000-499,999	35.2	1.4	4.8	7.3	6.5	3.6	5.9	3.2	13.8	18.3
500,000 & over	25.9	0.9	4.1	9.6	6.8	3.2	6.4	3.9	15.7	23.4
Rural										
under 10,000	65.3	2.0	7.7	1.7	4.9	1.8	0.2	1.4	7.8	7.2
10,000-19,999	65.7	3.0	6.2	2.2	4.6	2.2	0.4	1.3	7.1	6.9
20,000-29,999	64.7	3.3	5.9	2.4	4.7	2.7	1.0	1.3	6.6	7.4
30,000-39,999	62.8	3.7	5.6	2.5	5.0	3.1	1.3	1.5	6.5	8.2
40,000-49,999	61.5	3.7	5.4	2.7	5.0	3.4	1.5	1.5	6.7	8.5
50,000-59,999	59.2	3.5	5.2	3.0	5.2	3.5	2.1	1.8	7.3	9.4
60,000-79,999	56.4	3.6	5.2	3.2	5.2	3.8	2.7	1.8	8.2	9.9
80,000-99,999	53.4	3.1	5.0	3.8	5.3	3.9	3.3	2.0	8.8	11.4
100,000-149,999	48.1	2.7	4.7	4.2	5.3	4.1	4.1	2.5	9.2	15.0
150,000-249,999	42.8	2.2	4.4	4.7	5.6	4.0	5.0	3.1	9.9	18.4
250,000-499,999	35.0	1.8	4.0	6.0	5.6	4.0	5.9	2.4	11.8	23.5
500,000 & over	26.5	1.7	3.1	9.1	5.6	3.6	6.6	3.6	12.0	28.2
NCR										
under 10,000	...	...	...	...	...	...	...	...	...	...
10,000-19,999	58.7	6.1	8.3	0.0	4.0	2.2	0.0	0.4	20.2	0.0
20,000-29,999	59.3	1.6	7.4	2.4	4.9	2.2	0.3	1.4	18.3	2.2
30,000-39,999	51.3	2.4	8.8	2.1	5.8	2.2	0.3	2.5	20.9	3.6
40,000-49,999	57.4	2.7	6.8	2.9	5.2	2.7	0.6	2.7	16.8	2.0
50,000-59,999	54.6	2.4	7.6	4.0	5.0	3.2	1.1	1.7	16.5	4.0
60,000-79,999	55.8	3.0	7.5	3.9	5.2	2.6	1.1	1.3	14.8	4.9
80,000-99,999	53.3	2.6	7.0	4.0	5.3	3.1	1.3	1.3	15.6	6.8
100,000-149,999	50.1	2.3	6.7	4.9	4.9	3.2	2.2	1.3	15.9	8.4

The Dynamics of Housing Demand in the Philippines

Appendix 11 (continued)

Income Class	FOOD	ALBEV & TBCCO	FUEL	TRCOM	HOPER & PRCRE	CLOTH	EDUC	MEDIC	HOUSE	OTHERS
150,000-249,999	45.1	1.7	6.0	5.9	5.1	3.1	3.2	2.0	17.9	9.9
250,000-499,999	37.2	1.3	5.4	7.2	5.6	3.3	4.6	1.7	19.2	14.8
500,000 & over	20.2	0.6	4.6	10.2	6.0	2.3	4.1	2.1	29.7	20.0
Manila										
under 10,000	...	...	...	...	...	...	...	...	...	...
10,000-19,999	65.8	1.6	3.6	4.5	4.3	1.2	0.4	2.9	11.9	3.8
20,000-29,999	62.5	2.2	5.5	4.5	5.1	2.2	2.3	3.0	11.5	1.2
30,000-39,999	61.8	2.0	5.1	2.8	3.9	1.3	2.1	1.4	16.7	2.8
40,000-49,999	63.5	3.0	5.8	3.6	4.7	2.2	0.8	0.7	12.4	3.4
50,000-59,999	61.2	3.1	5.0	2.9	6.1	2.3	1.9	0.9	13.7	2.9
60,000-79,999	58.9	2.7	6.1	3.6	5.3	2.7	1.8	0.8	12.4	5.9
80,000-99,999	57.7	2.8	5.7	4.0	6.0	2.3	1.0	0.7	12.2	7.5
100,000-149,999	52.5	2.1	5.6	4.5	5.0	2.6	2.1	2.2	15.3	8.1
150,000-249,999	48.3	2.1	5.7	4.7	5.4	2.6	2.4	1.3	13.9	13.5
250,000-499,999	38.9	1.1	4.8	6.3	7.4	3.1	4.1	2.0	18.3	13.9
500,000 & over	25.3	0.5	4.1	14.3	6.2	2.1	3.1	6.2	23.9	14.0
Manila										
under 10,000	...	...	...	...	...	...	...	...	...	...
10,000-19,999	58.9	0.2	4.1	1.0	5.6	4.0	0.0	3.0	15.4	7.9
20,000-29,999	55.8	1.2	4.9	1.5	5.1	3.8	0.2	4.0	17.3	6.2
30,000-39,999	60.5	6.2	4.6	3.9	4.9	3.1	2.9	2.3	9.0	2.7
40,000-49,999	61.0	4.6	4.2	3.7	4.6	3.2	0.9	2.5	10.9	4.4
50,000-59,999	55.2	3.3	4.8	3.5	5.2	3.1	2.3	1.6	8.4	12.4
60,000-79,999	55.3	4.3	4.2	4.1	5.4	4.1	1.5	2.8	9.2	9.1
80,000-99,999	53.5	3.3	4.4	4.7	5.6	3.8	2.5	2.4	8.7	11.0
100,000-149,999	50.8	2.9	4.4	5.2	5.5	4.5	3.3	2.0	11.2	10.2
150,000-249,999	41.9	1.8	4.4	7.7	5.9	4.1	3.9	2.7	12.9	14.8
250,000-499,999	33.8	1.4	4.4	10.3	6.8	4.1	4.3	2.1	11.8	21.0
500,000 & over	25.4	0.9	3.3	12.8	5.4	3.0	3.8	4.4	11.9	29.1

ALBEV/ alcoholic beverages
 TBCCO tobacco
 FUEL fuel, light & water
 TROOM transportation & communication services
 HOPER household operation
 PRCRE personal care & effects
 CLOTH clothing, footwear, etc.
 EDUC education
 MEDIC medical care
 HOUSE rental of occupied dwelling unit and repair

Source: Family Income and Expenditure Survey, National Statistics Office 1997.

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